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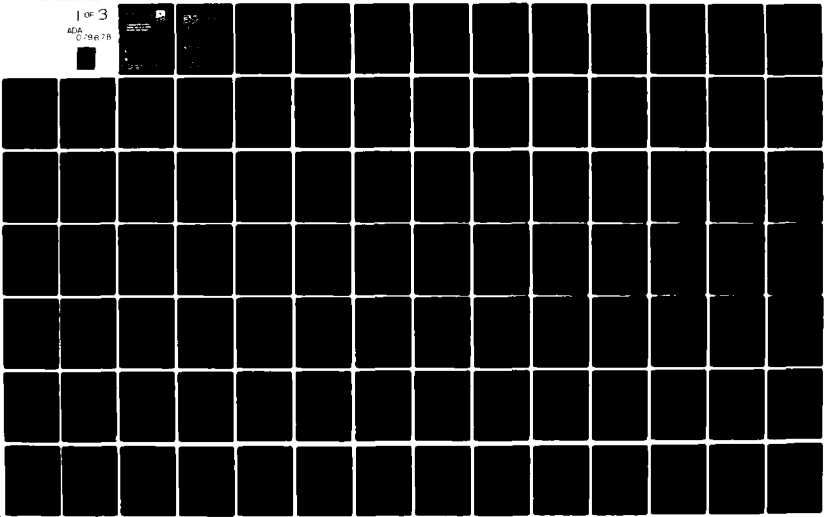

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The cost impact of standardization as applied to Air Force avionic systems is discussed in this report. Several life-cycle cost estimates were made on the ASD Common Multi-Mode Radar program using the Standardization Evaluation Program (STEP) model. Costs for development, operation, and support of a common (standard) radar system are compared with like costs estimated for using individually developed radar systems across applicable aircraft. The STEP model is described, the Common Multi-Mode Radar program is discussed, and the STEP model application to this radar program is documented. STEP

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20. **ABSTRACT (Cont'd)**

estimates project life-cycle costs of unique radar systems to be twice those of a common radar system. Results are discussed in terms of STEP runs and ASD costing estimates, and STEP model use is described.

FOREWORD

This report covers work conducted in-house by the System Concepts Group (AAA-2), Avionic Systems Engineering Branch, System Avionics Division, Air Force Avionics Laboratory, Wright-Patterson AFB, Ohio 45433, under PE 62204F, Project 2003, "Avionics System Design Technology", Task 200302, Advanced Avionic System Concepts, Work Unit 20030236, "Standard Modular Avionic System". The time period of work was May 1979 through September 1979.

The authors wish to thank Mr John Garcher, AFAL/AAS-2, for his expert assistance with the use of the STEP model, Mr Ron Longbrake, ASD/ENA, for his assistance in obtaining radar system cost figures, and Mr Bob Gates, TASC, for his technical assistance. The authors also wish to acknowledge the continual support provided by Ms Diane Summers, AAA-3, Capt Ken Almquist, AAA-3, and Lt Barry Baxley, AAA-2. A special debt of gratitude is owed to Mrs Betty Hoover, who spent many unselfish hours in the typing, retyping, editing and final preparation of this report. Her unique capabilities and expert secretarial and stenographic skills aided immeasurably.

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

LIST OF TABLES

LIST OF ABBREVIATIONS

A/C - Aircraft

AEP - Avionics Evaluation Program

AFAL - Air Force Avionics Laboratory (AFSC)

AFALD - Air Force Acquisition Logistics Division

AFLC - Air Force Logistics Command

AFSC - Air Force Systems Command

AGE - Aerospace Ground Equipment

ASD - Aeronautical Systems Division (AFSC)

DSPC - Design to performance/cost

Force Structure - The entire complement of aircraft in the USAF operational inventory at any specified point in time.

F^3 - Form, Fit and Function

INS - Inertial Navigation System

IRT - Independent Review Team

K-Factor - Reliability degradation factor for equipment operating in severe environments. (In this report K=1 for the Cargo/Transport cruise flight environment, K=2 for Strategic Bomber, and K=3 for Attack and Air Superiority Aircraft).

LCC - Life-Cycle Cost

Local LCC (L-LCC) - Life-cycle cost for developing, acquiring, installing and supporting the avionics equipment selected for a single aircraft type.

LRU - Line Replaceable Unit

LSC - Logistics Support Cost

MCSP - Mission Completion Success Probability (Probability of Aircraft arriving in mission objective area with sufficient equipment operative to complete mission).

Mission Area - Generalized mission role

Mission Phase - Segment of the mission profile requiring specific avionics system/subsystem utilization and performance.

MMR - Multi-Mode Radar

MTBF - Mean Time Between Failures

Navigation Suite - The entire complement of navigation avionics equipment on an aircraft.

R&D - *Research and Development*

Redundancy - Provision of two identical pieces of equipment performing parallel functions to provide a single-fail-operative mission capability.

SE - Support Equipment

Standard Cost Factors - Cost parameters associated with equipment entry into USAF inventory and equipment support which are independent of the aircraft program considered, e.g., maintenance labor rates, data management costs, packaging and shipping costs.

Standardization - Use of a standard subsystem on more than one aircraft type.

STEP - Standardization Evaluation Program

TACAN - Tactical Air Navigation

TASC - The Analytic Sciences Corporation

DEFINITIONS FROM AFR 800-11

Acquisition Management

LIFE CYCLE COST MANAGEMENT PROGRAM

Acquisition - The aggregation of efforts related to developing, producing, and deploying a product to the user. Acquisition begins with approval of a mission need and ends when the last unit is provided.

Life Cycle Cost - The total cost of an item or system over its full life. It includes the cost of acquisition, ownership (operation, maintenance, support, etc.) and, where applicable, disposal. To be meaningful, an expression of life cycle cost must be placed in context with the cost elements included, period of time covered, assumptions and conditions applied, and whether it is intended as a relative comparison or absolute expression of expected cost effects.

Acquisition Cost - The cost of research, development, test, and evaluation (RDT&E), production or procurement of the end item, and the initial investments required to establish a product support capability (e.g., support equipment, initial spares, technical data, facilities, training, etc.).

Ownership Cost - The cost of operation, maintenance, and follow-on logistics support of the end item and its associated support systems. The terms "ownership cost" and "operating and support cost" are synonymous.

Design-to-cost - An acquisition management technique used to control a product's life cycle cost. The technique embodies establishment of "design to" cost goals for the new product, early in the acquisition effort. The goals usually relate to significant segments of the product's life cycle cost, e.g., RDT&E, production, and operation and support. The technique applies only to acquisition or modification programs, which involve design effort. Where establishment of a dollar figure is impractical, Air Force policy recognizes that suitable non-dollar parameters may be used instead (e.g., MTBF, gallons per hour, numbers of personnel, etc.).

DEFINITIONS FROM AFR 800-28

Acquisition Management

AIR FORCE POLICY ON AVIONICS ACQUISITION AND SUPPORT

Avionics - All the electronic and electromechanical systems and subsystems (hardware and software) installed in an aircraft or attached to it. Avionics systems interact with the crew or other aircraft systems in these functional areas: communications, navigation, weapons delivery, identification, instrumentation, electronic warfare, reconnaissance, flight controls, engine controls, power distribution, and support equipment.

Avionics Architecture - A disciplined approach to defining how the avionics suite is integrated with the aircraft and crew. It includes the information that must flow between the aircraft, the crew, and the avionics suite. Thus, the language used in processing the software, the cabling (hardwired versus multiplexed busing), the processing of data, the control and switching, and most importantly, the interfact criteria are all parts of the avionics architecture.

Avionics Commonality - Using the same piece of avionics equipment in two or more different systems. This means that the equipment used in each system duplicates that used in another system at all levels of hardware and software.

Avionics Interchangeability - Exchanging one piece of avionics equipment for another without changing the external interfaces on the avionics architecture. This does not imply equipment commonality, but only that the two pieces of equipment are compatible in form, fit and function.

Avionics Master Plan - An Air Force plan that integrates all avionics planning, acquisition, modification, and support with mission and functional area planning. The purpose of the Master Plan is to provide cost-effective, time-phased avionics that meets the

needs of present and future aeronautical systems. It is an evolving plan extending into the future, and it must be responsive to changing needs, technology, and system concepts.

Avionics Standards - The specifications and design requirements that every avionics design and equipment must comply with.

Avionics Suite - A listing of installed or planned equipment needed to provide the mission capabilities of the weapon or aircraft system involved.

Interface - A boundary or a point common to two or more pieces of equipment at which necessary information flow takes place.

Interoperability - The ability of systems to provide information to, and accept information from, other systems and to use the information exchanged to operate together effectively.

Standard Avionics - Those pieces of common avionics equipment that perform a particular function for more than one system.

SECTION I

INTRODUCTION

1.1 BACKGROUND

The concept of avionics standardization has continued to receive considerable attention in recent years. Avionic systems proliferation, resulting primarily from rapidly increasing technology, has and will continue to, increase system life-cycle costs. Included in these costs are those for research and development, production, and operation and support. Individually developed systems incur separate costs in each of these areas. Recent cost estimates show that research and development accounts for 10-25% of avionic systems life-cycle cost, while production comprises 35-75%, and operation and support consumes the remaining 50-70% (sample data from Reference 1; References 2,3).

As a result, Air Force efforts toward avionic standardization has increased considerably. This is evidenced by establishment of the Air Force's Deputy for Avionics Control. This office, ASD/AFALD/AX, is responsible for development and administration of the Avionics Master Plan. Briefly, the Avionics Master Plan aids in control of the avionics acquisition process. It serves as a baseline against which all programs are compared with the objective that force-wide standardization is continually pursued (Reference 2).

Positive gains toward standardization have been made. These include adoption of the MIL-STD-1553 family of multiplex bus standards, the MIL-STD-1750 instruction set for avionics computers, and the J-73 Higher Order Language, MIL-STD-1589, for Avionics Operational Flight programs. These represent only the beginning. Higher development, procurement, and support costs, constrained severely by limited budgets, and critical personnel and support shortages, require continued top-down objective avionic systems acquisition (Reference 4). New technologies must be efficiently merged with avionic system designs to develop affordable, mission capable systems. These systems, possessing previously unimagined capabilities, must be skillfully designed and managed to fit within severe constraints of budget and personnel.

Assuming that technology had advanced sufficiently to allow avionic systems development to meet most stringent mission requirements, minimal loss is expected for using high technology equipment in less demanding scenarios. The tradeoff would be in paying much of the life-cycle cost for an avionic system only once, easing budget and personnel constraints. Intuitively, it follows that considerable savings could be gained by standardizing, rather than proliferating, avionic systems.

In an attempt to quantify these projected cost benefits to be gained from standardization, the Air Force Avionics Laboratory, under contract with The Analytic Sciences Corporation (TASC), has developed

the Standardization Evaluation Program (STEP) model to quantify life-cycle cost benefits gained from standardization. TASC developed the STEP program and applied it to assess standardization potential of various navigation systems. The report by TASC (Reference 5) documents use of the STEP program and navigation system analyses. The results of the projected benefits available when standardization concepts are employed in a top-down avionic system planning mode are shown in Tables I and II, page 5.

A follow-on contract to TASC resulted in the Air Force acquisition of the STEP model, and extensions to STEP program capabilities. The avionic systems data base was expanded from navigation systems to include a wider scope of avionic equipment. The second effort resulted in expanded Air Force life-cycle cost modeling capabilities by: a) the use of STEP to handle a wide variety of standardization evaluation problems ranging from global planning studies to local life-cycle cost evaluations; b) allowing schedule-orientation to recognize prior use of applicable equipment, as well as to project future technological capability; and c) allowing evaluation of the effects of standardization by following a detailed spec or standardization through conformance to a form, fit and function (F^3) specification (Reference 6).

The STEP program is installed on the ASD CDC Cyber 175 computer system, and is available through AFAL for use by the DOD community.

1.2 TECHNICAL APPROACH

The technical approach for life-cycle costing of comparative radar systems is based on the use of the STEP model. The model was used to compare life-cycle costing of individually developed radar

TABLE I (Ref 5: 6-5) *

GLOBAL LCC BENEFITS OF ALTERNATIVE STANDARDIZATION CONCEPTS

T-1336

ASSUMPTIONS

- CASE 1: STANDARD SUBSYSTEM APPLIED IN EACH AIRCRAFT
- CASE 2: NEW SUBSYSTEM DEVELOPED FOR EACH AIRCRAFT
- COST CHARACTERISTICS OF EACH NEW SUBSYSTEM AND STANDARD SUBSYSTEM ARE INITIALLY IDENTICAL

NAVIGATION SUBSYSTEM	APPLICABLE AIRCRAFT	CASE 1 GLOBAL LCC	CASE 2 GLOBAL LCC	BENEFITS	
				(Case 2 - Case 1)	% (CASE 2 - CASE 1) / CASE 2
INERTIAL NAVIGATION SYSTEM	F-16, A-10A, A-10B, FOI	$310 M	$560 M	$250 M	45%
INERTIAL NAVIGATION SYSTEM	F-16, A-10A, A-10B, FOI, ANST, ATCA, KC-135	$402 M	$718 M	$316 M	44%
NAVIGATION COMPUTER	F-16, A-10A, A-10B, FOI	$160 M	$280 M	$120 M	43%
NAVIGATION COMPUTER	F-16, A-10A, A-10B, FOI, AMST, ATCA, KC-135	$210 M	$357 M	$147 M	41%
OMEGA	AMST, ATCA KC-135	$ 14 M	$ 20 M	$ 6 M	30%
DOPPLER RADAR	B-52, B-1, KC-135	$ 28 M	$ 42 M	$ 14 M	33%

* 1976 Figures

TABLE II (Ref 5: 6-6) *

BREAKDOWN OF GLOBAL LCC BENEFITS FOR INS STANDARDIZATION

T-1335

ASSUMPTIONS

- GLOBAL LIFE-CYCLE COSTS CONSIDERED OVER F-16, A-10A, A-10B, FOI, AMST, ATCA, KC-135
- CASE 1: STD INS USED IN EACH PROGRAM
- CASE 2: NEW INS DEVELOPED FOR EACH PROGRAM
- COST CHARACTERISTICS OF EACH NEW INS AND STD INS ARE INITIALLY IDENTICAL

LCC ELEMENT	CASE 1 STANDARD INS	CASE 2 NON-STANDARD INS
ONE-TIME COSTS* *	$ 13 M	$ 91 M
HARDWARE ACQUISITION	$160 M	$210 M
SUPPORT EQUIPMENT	$ 12 M	$ 25 M
SPARES	$ 44 M	$ 77 M
RECURRING MAINTENANCE	$173 M	$315 M
TOTAL	$402 M	$718 M

*1976 Figures

**Development, Technical Data, Initial Training, Contractor Support, etc.

subsystems for each aircraft application with using common (to maximum extent possible) radar subsystems across a spectrum of applicable aircraft. The applicable radar subsystems comprising the Common Multi-Mode Radar are listed in Table III.

It is necessary to discuss one major assumption. It is recognized that the scope of missions for the applicable aircraft is as diverse as the list of aircraft itself. Thus, it is recognized that radar systems specifications are different for each mission requirement. It is assumed, therefore, that the systems specifications of the Common Multi-Mode Radar are sufficient to meet the most demanding requirements, and, thus represent acceptable levels of over-specification for aircraft with less stringent requirements.

Costing input for STEP was obtained from various sources, including ASD/EN (Mr Ron Longbrake), Air Force planning guides, and cost estimates from the RCA PRICE models. The price of software development, acquisition, and maintenance was not considered in the STEP analyses.

1.3 SUMMARY OF RESULTS

The STEP analysis results for the Common Multi-Mode Radar system are shown in Table IV, page 8. The projected cost savings for the standard radar compared to individually developed systems is on the order of 2 to 1. Significant savings resulting from standardization appeared in all areas of life-cycle costing, (R&D production, operation and support). In addition, higher production quantities are expected

TABLE III

RADAR COMPONENTS/APPLICABLE AIRCRAFT

RADAR SUBSYSTEM	APPLICABLE AIRCRAFT
Antenna	F-106, F-4E, F-16, B-52G, B-52H, FB-111, F-111A, E, D, F
Transmitter	" (same as above)
Receiver/Exciter	" (same as above)
Signal Processor	" (same as above)
Computer	" (same as above)
Pulse Transmitter	F-106
CW Illuminator	F-4E
Control & Display	F-106
Control & Display	B-52G, H
Terrain Following Radar	FB-111, F-111A, E, D, F

TABLE IV

GLOBAL LCC BENEFITS OF COMMON RADAR SUBSYSTEMS (LRU LEVEL)

ASSUMPTIONS:

- CASE 1 - Standard Subsystems Applied in each Aircraft
- CASE 2 - New Subsystems Developed for each Aircraft
  - Cost Characteristics for each new Subsystem and Standard Subsystem are Initially Identical

AIRCRAFT	RETROFIT ORDER	CASE 1	CASE 2
F-106	1	531 M	531 M
F-16	2	381 M	602 M
B-52G	3	182 M	456 M
B-52H	4	97 M	310 M
F-4E	5	366 M	809 M
FB-111	6	62 M	235 M
F-111A	7	63 M	260 M
F-111E	8	53 M	271 M
F-111D	9	54 M	250 M
F-111F	10	61 M	259 M
		1850 M	3983 M

BENEFITS FROM STANDARD RADAR

CASE 2:	3983 M
CASE 1:	1850 M
	2133 M

to yield lower cost, and more reliable units, increasing Mean Time Between Failure (MTBF). This, in turn, is expected to reduce maintenance costs, logistics costs, training costs, and tech order and manual publication costs.

ASD PRICE estimates for the Common Multi-Mode Radar Program projected savings on the order of .500 billion dollars. Projected savings from the STEP model are on the order of 2 billion dollars. The two figures cannot be directly compared due to differences in factors considered by each model. One primary difference is in the area of equipment configuration. The STEP analysis considered a different quantity of items from the ASD PRICE analysis, and some equipment items considered in the STEP analysis was not considered in the ASD PRICE analysis. In addition, the STEP model considers benefits (and costs) due to standardization, and the PRICE model does not. The results section of the report (Section V) gives explicit system cost breakdowns, and expected cost savings resulting from radar system equipment standardization.

The next section discusses the details of the ASD Common Multi-Mode Radar program and states the conclusion of the ASD cost studies.

SECTION II

COMMON MULTI-MODE RADAR PROGRAM

The ASD Common Multi-Mode Radar Program is considered to be a high priority standardization initiative (Reference 7). This radar program meets selection criteria set out for candidate standardized avionics. These criteria state that standardization candidates use mature technology, have an architecture suitable for standardized interfaces, have multiple aircraft applications, and are needed in quantities large enough to realize savings in production and support costs. In addition, the standardization of a program must be determined to be cost-effective.

Technology advances in digital signal processing devices have resulted in significant radar system improvements, specifically, the development of the Programmable Signal Processor (PSP). Changes to radar modes can be accomplished through software, instead of costly hardware changes. The Hughes APG-65 Multi-Mode Radar, currently in production for the Navy F-18, represents the second generation of the Air Force F-15/APG-63 radar. The F-15/APG-63, as originally configured, included a hardwired signal processor. An update to this radar would include a programmable signal processor. A feasibility study investigated the application of the PSP updated radar to several aircraft, a requirement which originated from a need to update the low reliability F-106 radar system.

The common radar hardware study (Reference 8) was conducted by an Independent Review Team (IRT) with members from ASD/ENA, ASD/AX, ASD/ACC, AFALD, AFAL, ADCOM, TAC, SAC, AFLC, SAALC, WRALC, SBALC and OCALC.

The purpose of the IRT was to evaluate the F-106 radar modification/replacement options, and determine if the use of common radar hardware for various USAF aircraft application is advantageous. They were to identify common portions of the radar system and determine required radar performances for various applications. Among the issues considered were: a) retrofit costs for common radar hardware; b) cost effectiveness; c) applicable aircraft; d) performance requirements; e) common components; and, f) applicable radar systems.

The radars considered for replacement were the F-4E's, AN/APQ-120, F-106 A/B's MA-1/ASQ-25, F-111 and FB-111's AN/APQ-113/114/144/130, B52G/H's ASB-9A/16 and ASG-15/21. Other potential application for the common radar systems included the F-16 A/C #651 and subsequent, CMCA Fire Control System Radar, the RX (RF-16 etc.), Enhanced Tactical Fighter (ETF), and A-7. Candidate radar systems applicable to the Common Multi-Mode Radar Program include the F-16 Radar, the AN/APG-65 (F-18), AN/APG-63 (F-15), and Electronically Agile Radar (EAR).

The IRT concluded on Common Multi-Mode Radar system installation on the F-16, F-106, F-4E, F-111 A, E, D, and F, FB-111, B-52G/H Bomb Nav and Fire Control System installations as being feasible with

existing Radar Line Replaceable Units (LRU's). The F-16 installation presented the most severe installation constraints.

The cost analysis approach was to estimate acquisition and logistics support costs for incorporating the new radar. These costs were determined using the RCA PRICE H (Hardware) model, a parametric cost predicting model. Inputs to PRICE H include physical properties, quantities, scheduling, etc. The Air Force Logistics Command Logistics Support Cost (LSC) model was also used in estimating support costs.

Conclusions from the IRT study were:

1) Technology was sufficiently advanced that a Common Multi-Mode Radar could be considered for multiple aircraft application.
2) Significant savings could be realized by using a common system ($500M).
3) Common Multi-Mode Radar capabilities would include air-to-air and air-to-ground modes with sufficient performance for effective operation in the post 1985 environment.

Under the anticipated program supporting the Common Multi-Mode Radar, objectives would be to fabricate and test an advanced air-to-air and air-to-ground tactical radar, including hardware and software, and to establish the practicality of the Common Multi-Mode Radar for potential application to the F-16, B-52, F-111, F-106, and F-4 aircraft.

The Common Multi-Mode Radar Program as described provides an excellent application for the STEP model. The benefits gained from this type of avionic system standardization are calculated and estimated by the STEP model. A complete discussion of the STEP model capabilities is presented in the following sections.

SECTION III

STANDARDIZATION EVALUATION PROGRAM (STEP)

3.1 STEP REVIEW

The model description provided by References 5 and 6, and model documentation, Reference 8, is thorough and well written. This section, therefore, summarizes information presented in these referenced reports to provide the reader with technical background regarding the use of STEP.

The Standardization Evaluation Program (STEP) is an analytic tool capable of supporting a common avionics systems approach to standardization analysis. An overview of the inputs to STEP, its outputs, and the STEP-system analyst interface is shown in Figure 1.

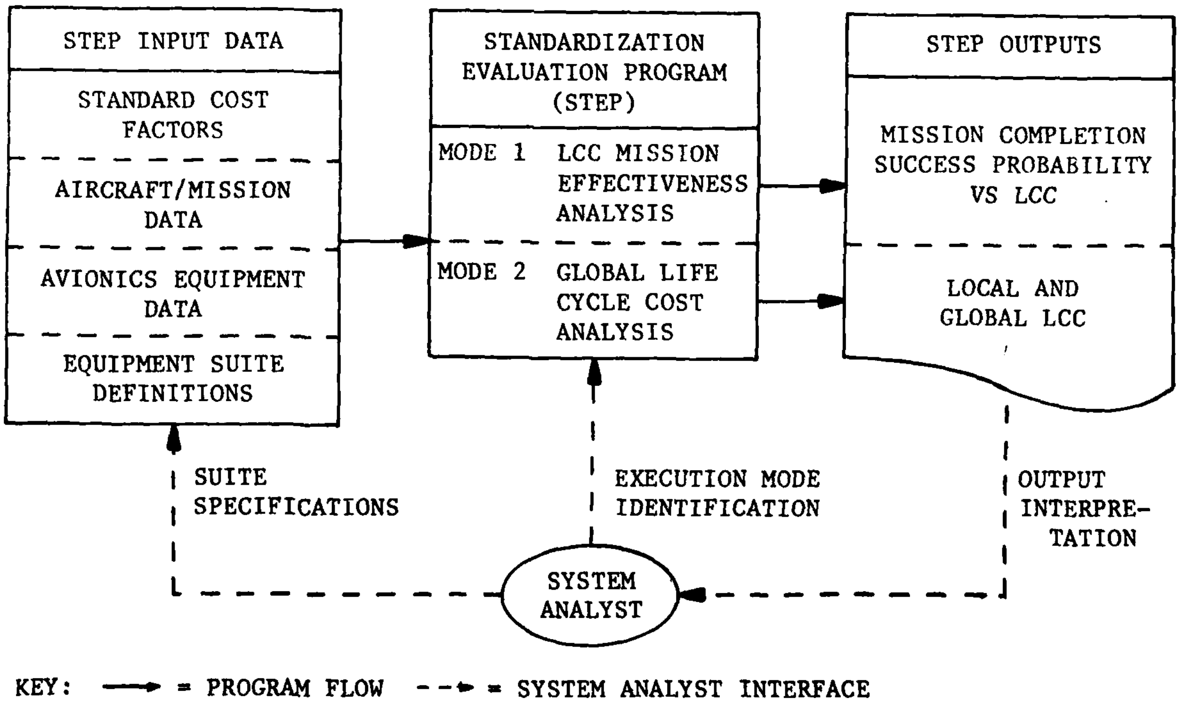

Fig 1. Overview of STEP (Ref 6:4-1)

The benefits of standardization in the past have frequently been expressed in qualitative terms. STEP represents a means of quantifying these benefits and comparing standardization alternatives and lending credibility to specific equipment standardization programs. The application of STEP to standardization issues lies in its ability to quantify benefits gained by considering standard system alternatives over more than one aircraft program and to the associated cost benefits of specific equipments over multiple aircraft programs.

Standardization implies the consideration of like avionic systems for more than one aircraft program and the associated cost benefits identifiable by the use of these standard systems over multiple aircraft programs. STEP is oriented toward quantifying these benefits in the case of design standardization. STEP is also capable of identifying benefits of Form, Fit, and Function (F^3) standardization.

In the area of design standardization, benefits derived are from reduced (per unit) production cost, resulting from increased production quantities. Increased reliability and higher Mean Time Between Failure (MTBF) reduces spares requirements and maintenance costs. Initial logistics costs would be reduced, especially if both or several aircraft were co-located. Development costs, as well as direct costs associated with field training, manuals, and tech orders, are also reduced.

STEP may also be used to analyze Form, Fit and Function (F^3) standardization issues concerning cost. F^3 standardization is an acquisition concept in which a common system requirement among several aircraft is established in terms of performance configuration and external interfaces. The internal characteristics of the system are, for the most part, left unspecified. The objective of the F^3 standardization approach is to promote competition and place incentives among equipment manufacturers over an extended period of time. In the long range, F^3 standardization increases procurement flexibility. It has the potential to reduce risk and reduce high costs associated with sole source procurements.

3.2 STEP LCC EVALUATIONS

There are two primary executions of the STEP model:

MCSP vs LCC evaluation of suite alternatives.

Global LCC evaluation taking standardization into account.

3.2.1 Mission Reliability Analyses Modes - MCSP vs LCC Evaluation

A prime consideration for standardization lies in the technical requirements for the avionics suite. Varying missions have associated minimum acceptable technical criteria for avionics. Mission reliability is an important criterion of acceptability. A common measure of mission reliability is the Mission Completion Success Probability (MCSP). This is defined as the probability that successful accomplishment of the defined aircraft mission is not precluded by a failure, or combination of failures, in the

selected avionics suite. The STEP model begins by selecting an avionics suite baseline, then calculating user provided MCSP. MCSP analysis begins with a selection of alternative avionics suites for the first aircraft considered. The lowest LCC avionics suite that meets the required MCSP is selected as the standardization baseline. This suite is then evaluated on the second aircraft, and altered if necessary to meet necessary MCSP for the second aircraft. Standardization benefits are incorporated if common equipment in the suite is used in both aircraft. The iterations are continued until all aircraft have been completed. Final global LCC figures reflect cost benefits resulting from the selection of common equipment items for different aircraft.

This option was not used in the Common Multi-Mode Radar program analysis.

3.2.2 Global LCC Evaluation

The uniqueness of the STEP program lies in the computation of system life-cycle costs on a global basis: Total costs are computed over multiple aircraft, with equipment commonality between different aircraft factored into LCC computation.

Figure 2 illustrates the manner in which Global LCC considerations are addressed in STEP. Aircraft are analyzed in chronological order of scheduled activation/retrofit programs. A table of "standardization factors" is maintained for each equipment that reflects the degree to which that equipment has been applied

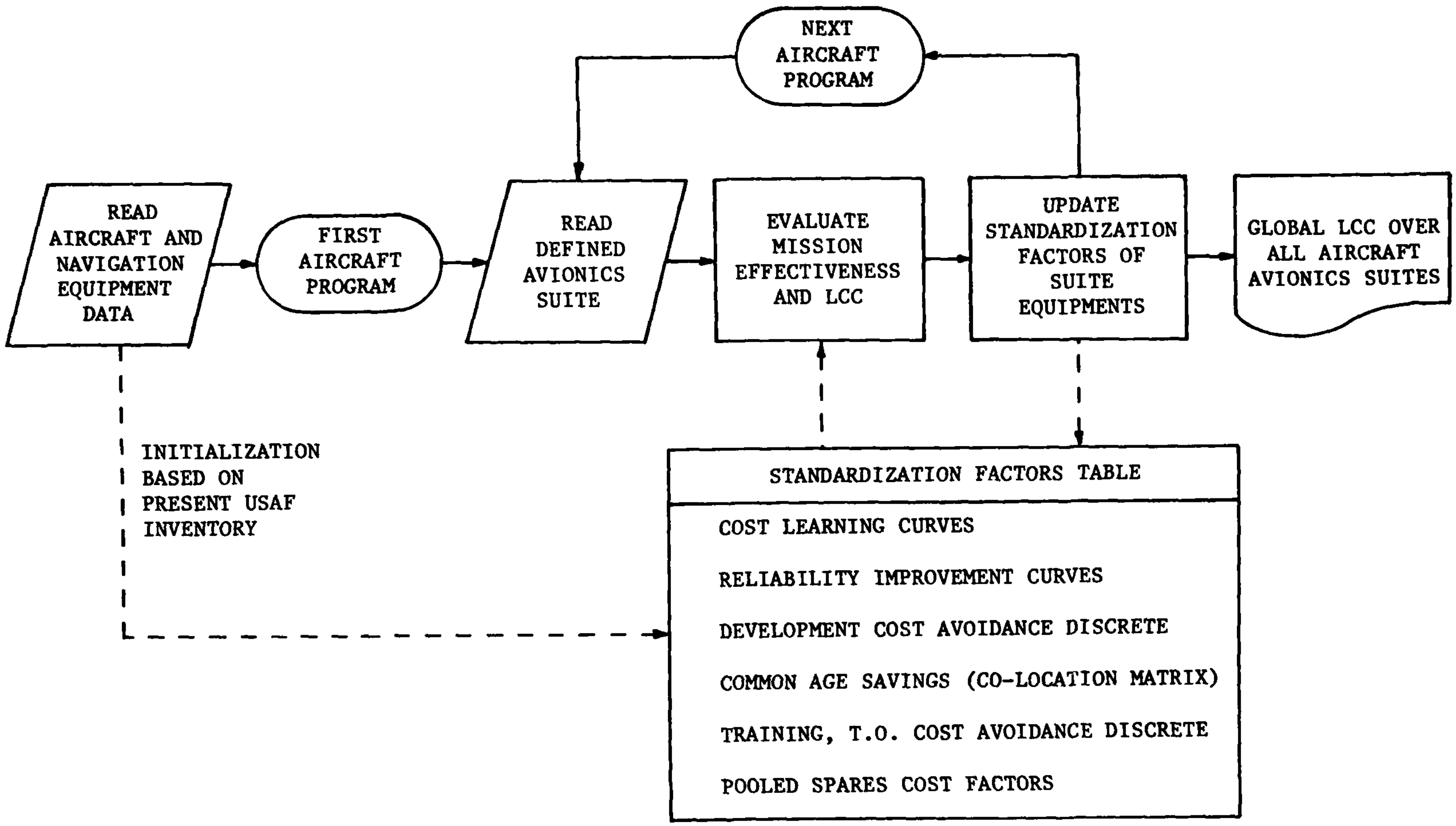

Fig 2. Overview of Global LCC Evaluation Model for STEP (Ref 6:4-11)

on aircraft analyzed to date in the evaluation. These factors are parameters of the LCC computation for the aircraft under current evaluation, and these factors for associated equipment are reflected when the avionic suite LCC evaluation is complete. The updated factors are then utilized in any LCC computation for subsequent aircraft programs that utilize this equipment.

STEP does not attempt to estimate system life-cycle costs on an absolute basis. It does, however, consider all major elements of LCC which are potentially influenced by standardization considerations and for which sufficient data exists to evaluate the relative differences between avionics equipment technologies. The following LCC elements are included:

Hardware Development

Support Equipment Development

Hardware Acquisition

Support Equipment Acquisition

Technical Data, Initial Training Field Support and associated Non-hardware Acquisition Costs

Initial Spares

Recurring Maintenance (Intermediate or I-Level and Depot or D-Level)

Packaging and Shipping

Support Equipment Operation and Maintenance

These elements are evaluated for specific equipment utilized on specific aircraft through direct input, analytic expres-

sions, or cost estimating relationships. All are impacted in one way or another by standardization. The detailed equations are presented in Reference 8.

3.2.3 Data Inputs

There are four basic sets of input data which are set up by the analyst to perform the STEP evaluation. These are:

Standard Cost Factors

Aircraft/Mission Data

Avionics Equipment Data

Equipment Suite *Definitions*

Generally, the first three sets of data are input initially and changed infrequently thereafter.

Standard Cost Factors - These data include program constraints and LCC parameters that are relatively independent of aircraft type and avionics technology. They are listed in Table V, page 22.

Aircraft/Mission Data - This data set consists of a referenced list of aircraft to be considered in the study and the parameters associated with these aircraft. Data are included on inventory entry or retrofit schedule, quantities, and deployment. Missions are also detailed in terms of mission phases pertinent to avionics system event and phase duration. A listing of this data is provided in Table VI, page 23. A set of Table VI data is required for each aircraft to be considered in the STEP analysed.

Avionic Equipment Data - This data set consists of a sequential list of avionics equipments and parameters associated

with the cost and reliability of these equipments. Required support equipment items and associated cost factors are also incorporated in this area of data. A listing of the input data is presented in Table VII, page 24, and Table VIII, page 25. Table VII data describes the avionics equipment, and Table VIII data describes the associated support equipment.

Equipment Suite Definitions - The equipment suites are comprised of items in the avionics equipment data set and are specified for all or some of the aircraft identified in the Aircraft/Mission data set. Input data is listed in Table IX, page 26.

3.2.4 STEP Outputs

The primary outputs of STEP are the results of the Design to System Performance/Cost (DSPC) analysis (if requested) and of the global LCC analyses. Examples of the global LCC outputs will be discussed in Section V results. The DSPC analysis was not used in the Common Multi-Mode Radar application of the STEP analysis, and examples of its results can be found in References 5 and 6.

TABLE V (Ref 11: 2-5)

STDIN INPUT VARIABLES

INPUT VARIABLE	STEP SYMBOL	TYPE*
Time Span of STEP Analysis (years)	LYF	I
Total Number of Base Locations	NBF	I
Total Number of CONUS Base Locations	NBC	I
Availability Objective Allocation Factor	ALLN	R
I-Level Repair Turnaround Time (hours)	TAT	R
Resupply Time to CONUS Located Bases (hours)	RSTC	R
Resupply Time to Overseas Located Bases (hours)	RSTO	R
Depot Stock Safety Factor (standard deviations)	DLY	R
Shipping Time to Depot from CONUS Bases (hours)	BDSC	R
Shipping Time to Depot from Overseas Bases (hours)	BDSO	R
D-Level Repair Turnaround Time (hours)	DRC	R
I-Level Labor Rate for Maintenance (dollars/hour)	SBR	R
I-Level Materials Consumption Rate (dollars/hour)	SBMC	R
D-Level Labor Rate for Maintenance (dollars/hour)	SDR	R
D-Level Materials Consumption Rate (dollars/hour)	SDMC	R
Support Equipment Operation and Maintenance Cost (% of SE acquisition cost/year)	CSEM	R
Packaging and Shipping Cost - CONUS (dollars/pound)	SPSC	R
Packaging and Shipping Cost - Overseas (dollars/pound)	SPSO	R
Exponent of Production Learning Curve for Electronic Equipment	LC(1)	R
Exponent of Production Learning Curve for Radar Equipment	LC(2)	R
Exponent of Production Learning Curve for Inertial Equipment	LC(3)	R
Exponent of Production Learning Curve for Support Equipment	LCSE	R
Depot Working Hours/Month/Shift	HMS	R
Number of Depot Work Shifts	NDS	I
Support Equipment Utilization Factor (utilizable hours/hour)	UTIL	R
Ratio of Nonhardware Acquisition Cost to First Unit Cost	SNHAF	R

*Real (R), Integer (I), or Alphameric (A)

TABLE VI (Ref 11: 2-9)
AIRIN INPUT VARIABLES

INPUT VARIABLE	STEP SYMBOL	TYPE
Initial Year of Installation/Retrofit Program	IBY(N)[(1)]	I
Final Year of Installation/Retrofit Program	IFY(N)	I
Installation/Retrofit Rate (aircraft/month)	RP(N)	R
Aircraft Service Life (years)	LIFE(N)	R
Total Number of Aircraft	NA(N)	I
Number of Aircraft Base Locations	NB(N)	I
Base Location Indices	IB(I,N)[(2)]	I
Aircraft/Base Location	NBA(I,N)	I
Number of Mission Types	NM(N)	I
Number of Mission Phases	NPHASE(M,N)[(3)]	I
Mission Success Probability Objective	SPO(M,N)	R
Missions Flown per Month	NMPM(M,N)	I
Aircraft Reliability K-Factor	XK(N)	R
Aircraft Availability Objective	AO(N)	R

Notes: (1) N indexes the aircraft programs.
(2) I indexes the base locations (1,2,...,NB(N)).
(3) M indexes the missions (1,2,...,NM(N)).

TABLE VII (Ref 11: 2-15)

NAVIN INPUT VARIABLES

INPUT VARIABLE	STEP SYMBOL	TYPE
Projected Availability Date (year)	IYA(I)[(1)]	I
Technology Type (Electronics-1, Radar-2, Inertial-3)	ITYPE(I)	I
Failure Rate (failures/hour)	FR(K,I)[(2)]	R
Accumulated Operating Hours	T(K,I)	R
Present Unit Acquisition Cost	PC(I)	R
Present Production Quantity	NQ(I)	I
Development Cost	DC(I)	R
Initial Inventory Introduction Switch	ISS(I)[(3)]	I
Reliability Growth Factor (Slope of Duane Curve)	ALPHA(I)	R
Number of Line Replaceable Units	NLRU(I)	I
Number of Shop Replaceable Units	NSRU(J,I)[(4)]	I
Number of Piece-Parts	NPP(J,I)	I
LRU Cost (Fraction of Total Equipment Cost)	FC(J,I)	R
LRU Failure Rate (Fraction of Equipment Failure Rate)	FM(J,I)	R
Fraction of Repairs Performed at I-Level	RTS(J,I)	R
Base Repair Time (manhours)	BRT(J,I)	R
Depot Repair Time (manhours)	DRT(J,I)	R
Weight (pounds)	W(J,I)	R
Peak Depot Return Rate (returns/month)	DDP(J,I)	R
Current Level of Depot Spares	NSPDP(J,I)	R
I-Level SE Line Item Index	LSEB(I)	I
D-Level SE Line Item Index	LSED(I)	I

Notes: (1) I indexes the different items of avionics equipment.

(2) K indexes the years in the analysis time span (1,2,...,LYF).

(3) ISS(I) = 0 if equipment I is currently in USAF inventory; 1 otherwise.

(4) J indexes the LRUs of the equipment item (1,2,...,NLRU(I)).

TABLE VIII (Ref 11: 2-17)

SEIN INPUT VARIABLES

INPUT VARIABLE	STEP SYMBOL	TYPE
SE Development Cost (dollars)	SED(I)[(1)]	R
SE Inventory Introduction Switch	ISE(I)[(2)]	I
SE Unit Acquisition Cost (dollars)	PSE(I)	R
SE Production Quantity	NQSE(I)	I
Current Usage Rate (hours/month)	USET(I)	R
Current Depot Quantity	NDEP(I)	I
Number of Bases with SE Positioned	NBSE(I)	I
SE Base Location Indices	IBSE(J,I)[(3)]	I

Notes: (1) I indexes the different items of SE on file.

(2) ISE(I) = 0 if SE item I is currently in USAF inventory

1 otherwise.

(3) J indexes the base locations at which the SE item is positioned (1,2,...,NBSE(I)).

TABLE IX (Ref 11: 2-21)

APPIN INPUT VARIABLES

INPUT VARIABLE	STEP SYMBOL	TYPE
Aircraft Index	N	I
Number of Subsystems in Suite	NSSYS	I
Number of Nonredundant Subsystem Options	NN(I)[1]	I
Equipment Indices for Nonredundant Options	ISI(J,I)[2]	I
Number of Redundant Subsystem Options	NRO(I)	I
Number of Redundant Equipments in Option	NR(J,I)	I
Equipment Indices for Redundant Options	ISIR(K,J,I)[3]	I
Subsystem Operating Time	TO(L,M,I)[4]	R
Mission Failure Probability Given Subsystem Failure	PA(L,M,I)	R

Notes: (1) I indexes the suite subsystems (1,2,...,NSSYS).

(2) J indexes the subsystem options (1,2,...,NN(I))
(1,2,...,NRO(I)).

(3) K indexes the redundant equipments within an option (1,2,...,NR(J,I)).

(4) M indexes the aircraft missions (1,2,...,NM(N))
L indexes the mission phases (1,2,...,NPHASE(M,N)).

SECTION IV

STEP ANALYSIS OF THE COMMON MULTI-MODE RADAR

The Common Multi-Mode Radar program provides a natural vehicle for the application of the Standardization Evaluation Program (STEP) model. The STEP model directly addresses the standardization objective of the common radar program. STEP provides a comparison of life-cycle costs (including development, production, and operation and support) between standard (common) and non-standard (individually developed) avionic systems, as was discussed in Section III. Required STEP input data for the Common Multi-Mode Radar Program was obtained from Mr Ron Longbrake, ASD/EN, PRICE H model runs, and Air Force planning documents. This section will discuss the Common Multi-Mode Radar system parameters related to the STEP model (radar system input data is listed in Appendix A).

Section III discussed the details of the input data. Recall that there were five sets of input required. They were:

Standard Cost Factors	-	STDIN	(Table V, p. 22)
Aircraft/Mission Data	-	AIRIN	(Table VI, p. 23)
Avionic Equipment Data	-	NAVIN	(Table VII, p. 24)
Support Equipment Factors	-	SEIN	(Table VIII, p. 25)
Equipment Suite Definitions	-	APPIN	(Table IX, p. 26)

Each set of input data will be discussed individually.

4.1 STANDARD COST FACTORS - STDIN

This input data set includes life-cycle cost input variables

that are generally independent of aircraft and avionics equipment applications. The STEP analyses (years) (LYF) must be at least as large as the number of years between installation/retrofit of the earliest aircraft under consideration and the end of the life cycle of the latest avionics equipment considered. The following constraints must be observed:

$$LYF \leq 50 \qquad (1)$$

$$IBY + LIFE \leq LYF \qquad (2)$$

where IBY is the initial year of the retrofit program, and LIFE is the aircraft service life (Section 4.2).

NBF, total number of base locations, must be at least as large as the total number of distinct base locations (CONUS and OSEAS) at which all aircraft under consideration are displayed. NBF should be less than 50.

NBC, total number of CONUS (continental US) is indexed to 99, although there are less than 50 CONUS bases. Overseas bases are indexed beginning at 100. The actual number of overseas bases is 10. Both NBC and NBF point to the AIRIN file (Section 4.2) input variables NB (number of base locations), IB (base location indices), and NBA (aircraft/base locations).

ALLN (availability objective allocation factors) represents the fraction of the overall availability objective for an aircraft that is apportioned to the avionics suite. For example, ALLN = 0.1 would indicate that 10% of all aircraft downtime was due to the particular avionic suite under consideration.

TAT, I-(Intermediate) level repair turnaround time (hours) accounts time from unit removal from aircraft to the same repaired unit returned to inventory.

DRC, D-(Depot) level repair turnaround time, uses the same accounting time procedures as does TAT.

Inputs RSTC through SPSO, HMS, NDS and UTIL, on the STDIN input variable list are self-explanatory. Cost, shipping, and maintenance rates reflect currently available Air Force accounting figures.

The learning curves LC(1), LC(2), LC(3), and LCSE assume the improved performance and increased effectiveness of workers on repetitive operations. They refer, respectively, to the exponents of production learning curves for electronic, radar, inertial, and support equipment. The respective values selected were LC(1) = 0.9, LC(2) = 0.9, LC(3) = 0.9, and LCSE = 1.0. (LC(1), (2), and (3) assume a 10% learning effect while LCSE assumes none for support equipment because of low quantity.

SNHAF, is the ratio of non-hardware acquisitions cost to first unit cost. Non-hardware acquisition costs such as technical, data, and repair manuals, training material, and contractor support are not addressed individually. This non-hardware acquisition cost is assumed to be proportioned to the first unit acquisition cost for the equipment and incurred by the first aircraft program utilizing the equipment.

4.2 AIRCRAFT MISSION DATA FILE - AIRIN

The Aircraft Mission Data File, AIRIN, identifies the aircraft included in the data set. For the STEP evaluation of the Common Multi-Mode Radar Program, the aircraft included are the F-16, F-106, F-4E, B-52G/H, FB-111, F-111A/E/D/F.

The first three variables relate the projected installation/ retrofit programs to specific aircraft.

IBY, initial year of installation/retrofit program,

IFY, final year of installation/retrofit program, and

RP, installation/retrofit rate (aircraft/month),

all relate to the projected installation/retrofit program for the aircraft. IBY and IFY relate specifically to the time span of the radar STEP analyses. The initial year of this study is 1979; therefore, 1979 is indexed at 1. The first aircraft deployment with the common radar is 1984; therefore, IBY(1) = 6. This indicates the first aircraft considered in the STEP analyses (F-106) will be in consideration beginning in year 6 of the STEP analyses (1984).

LIFE, aircraft service life (years) refers to the life span of the avionics equipment. The projected life span for the radar is 15 years for each aircraft.

NA, total number of aircraft, is 10 in this case,

NB, IB, and NBA refer to aircraft force projections,

NM, number of mission types,

NPHASE, number of mission phases, and

SPO, mission success probability objectives

are used in the MODE 1 analysis (3.2.1). On the MODE 2 analysis, NM and NPHASE values are set equal to 1. This suppresses the appropriate subroutines in the STEP program. These variables point to input variables TO and PA in the APPIN file, and are discussed in section 4.5.

NMPM, number of missions planned per month,is also aircraft dependent and is self-explanatory.

XK, reliability K-factor, reflects the consideration that the same equipment will display different reliabilities in different aircraft. Differences are a result of the varying severity of the stress and usage environments on different aircraft. Cargo transport aircraft possess the least stressful and represent the baseline. A fighter-attack aircraft would possess the most stressful environment. XK is defined as the ratio of equipment baseline MTBF to the operational equipment MTBF in the individual aircraft. The B-52G/H XK factor is 2.0; all others are 3.0.

AO, aircraft availability objective, for the radar study is set up to 0.85 for all aircraft. This information is used in spares requirement calculations.

4.3 EQUIPMENT COST FACTORS - NAVIN

The name - NAVIN - was selected during the development of the STEP program and its application to the navigation system standardization problem. It thus remains the title of the equipment cost factors section. This section identifies the avionics equipment included in the data set. For this particular STEP evaluation, the

equipment set consists of the antenna, signal processor, computer transmitter, CW illuminator, terrain following radar, receiver/exciter, controls and displays (B-52). Each element of the equipment set has a separate NAVIN file.

The NAVIN variables consist of avionics equipments and associated cost and reliability parameters.

IYA, projected availability date (year index) is indexed at 6 for all aircraft. The indexing procedure follows the method used in the AIRIN file (section 4.2). All equipments are scheduled for deployment on the first aircraft in 1984.

ITYPE, technology type, identifies the appropriate class of the avionic subsystem, Electronics - 1, Radar - 2, Inertial - 3.

FR, failure rate, is the inverse of the mean time between failure (1/MTBF).

T, accumulated operating hours, is self-explanatory.

PC, present unit acquisition cost, and NQ present production quantity, refer to the unit acquisition cost and the number of production units on which the cost is based.

DC, development cost, is self-explanatory.

ISS, initial inventory introduction switch, is either 1 or 0. ISS(I) = 1 indicates that the particular equipment is already in Air Force inventory; ISS(I) = 0 indicates otherwise, and then hardware and support equipment development cost is included in the STEP LCC calculations.

ALPHA, reliability growth factor is the slope of the Diane reliability growth curve (Reference 9, Reference 10:5-15, 5-16). ALPHA is used to update the failure rate profile of the equipment overtime.

NLRU, number of line replaceable units, NSRU, number of shop replaceable units, and NPP, number of price parts, are self-explanatory.

FC, LRU cost, breaks down the equipment cost into fractions; each fraction representing a specific LRU cost over the total equipment item cost.

FM, LRU failure rate, like FC, breaks up the total equipment failure rate into fractions. There, each fraction represents a specific LRU failure rate over the total equipment failure rate.

RTS, fraction of repairs performed at I-level, is self-explanatory. Note: this is entered for each particular LRU in the equipment file.

BRT, base repair time, and DRI, depot repair time, are self-explanatory.

W, weight, is self-explanatory and refers to each particular equipment set.

DPP, peak depot return rate (number of returns per month) and NSPDP, current level of depot spares, are set to zero in the common radar study because items are all new equipments.

LSEB, I-level support equipment (SE) line item index, and LSED, D-level SE line item index identify the support equipment required at

the base and depot respectively to support the particular avionics equipment set. Base level and I-level are considered the same maintenance level.

4.4 SUPPORT EQUIPMENT FACTORS - SEIN

The support equipment data file identifies the support equipment included in the data set. In the common radar study, the support equipment set includes a support equipment unit for the I-level and one unit for the depot level. For the common radar study, the specified I-level and D-level SEIN items are to be associated with (used for maintenance of) all NAVIN equipment set items.

SED, support equipment development cost, is self-explanatory.

ISE, support equipment introduction switch, value is equal to 0 if the appropriate support equipment item is currently in the USAF inventory and 1 otherwise.

PSE, support equipment unit acquisition cost, is the current unit cost for an item based on a production of a quantity. NQSE, support equipment production quantity.

USET, current usage rate (hours/month), NDEP, current depot quantity, NBSE, number of bases with support equipment positioned, and IBSE, support equipment base location indices, are standardization factors which are initialized in SEIN and are updated by the STEP program each time that an equipment for which the support equipment item is required, is selected for an aircraft program. USET tracks the usage demand for the item at depot, NDEP, the

quantity currently positioned at depot, NBSE, the number of base locations at which the item is positioned, and IBSE, the identifier indices for these locations. For this application, each common radar program support equipment is new and each of these variables is initialized at zero.

The following limitations apply to the NAVIN and SEIN variables included in any STEP run:

Number of NAVIN equipments $\leq$ 20.

Number of LRU's in NAVIN equipment set $\leq$ 5.

Number of support equipment items $\leq$ 40.

4.5 EQUIPMENT SUITE DEFINITION DATA - APPIN

The equipment suite definition data inputs identify the equipment configurations or configuration options for some or all of the aircraft identified by AIRIN data sets. The configurations are comprised of equipments identified by NAVIN data sets. The first entry identifies the number of aircraft for which equipment configurations are defined. The equipment configurations are defined for all ten aircraft in the AIRIN file. Data sets are then entered defining the configuration for each aircraft. The order in which these data sets are entered is important. The order of data sets corresponds to the chronological sequence of the aircraft installation/retrofit programs.

N, aircraft index, identifies the aircraft for which the equipment configuration is being specified. For example, N = 3

corresponds to the third aircraft in the AIRIN data file, the F-111A aircraft program.

NSSYS, number of subsystems in suite, defines the number of distinct subsystems in the suite being specified for this aircraft. Next, equipment options are identified for each of these subsystems.

NN, number of non-redundant subsystems options, is self-explanatory.

ISI, equipment indices for non-redundant options, identifies the actual equipments corresponding to each subsystem and option.

NRO, number of redundant subsystem options, would indicate 2 if there were, for example 2 like computers on one aircraft.

ISIR, equipment indices for redundant options, identifies the actual equipments corresponding to each subsystem and option which, in effect, points to items in the NAVIN data file by means of index identification.

TO, subsystem operating time, and PA, mission failure probability given subsystem failure are used in the MCSP vs LCC evaluation portions of the STEP analysis. This portion of the analysis was not used on the common radar study. The duty cycle matrix TO and the failure impact matrix PA are developed through considerations of the mission profile and phase table. TO identifies the operating time of each subsystem in each phase of each aircraft mission. PA specifies the mission failure probability given a subsystem failure and must also be defined for each subsystem in each phase of each aircraft mission. This application is detailed well in Reference 3

and the reader is referred to this document for a more thorough discussion.

The APPIN input variables are subject to the following limits:

Number of subsystems in suite (NSSYS) $\leq$ 20.

Number of non-redundant subsystem options (NN) $\leq$ 10.

Number of redundant subsystem options (NRO) $\leq$ 10.

Number of redundant equipments in option (NR) $\leq$ 4.

4.6 APPLICATION OF STEP TO THE COMMON RADAR

The application of the STEP program to the common radar study was nearly direct. The only changes required were in equipment set definitions. In the SPANS study the equipment baseline configuration consisted of the TACAN, OMEGA, radar, doppler, altimeter, C-IV, INS, ADS, and computer. Each one of these equipment items was treated as an LRU in the STEP analysis.

In the equipment file of the common radar study, the common radar itself is treated as an LRU. The antenna, receiver exciter, computer, signal processor, pulse transmitter, CW illuminator, terrain following radar, controls and displays (F-106), controls and displays (B-52), and transmitter are treated as SRU's. These SRU's are considered the equipment baseline configuration.

4.7 STEP EXECUTION

The STEP input data sets, as previously described, each begin with $Namelist and end with $END.

The program run specification data assigns the title to the run:

COMMON RADAR STD LCC

The $RUN data set states the MODE of the STEP execution,

MODE = 1: LCC-Mission Effectiveness Analysis of Suite Options

MODE = 2: Global Life-Cycle Cost Analysis

the accounting for standardization,

ISKIP = 0: Standardization effects are not reflected in LCC evaluations

and input listing in output,

INPOUT = 0: Listing in input data is suppressed

INPOUT = 1: Input data is listed in STEP output.

This radar study focuses on the cost benefits comparison of developing one common radar system for ten Mission Design Series (MDS) versus developing ten unique radars for ten MDS, assuming the common radar and the ten unique radars would have similar capabilities. A MDS refers to the specific aircraft type. The program is run, therefore, in MODE 2, Global LCC Analysis, and is executed twice. The final execution, ISKIP = 0, accounts for standardization. The second execution, ISKIP = 1, does not incorporate standardization effects.

Complete listings of STEP input are presented in Appendicies A and B. Appendix A is a listing of the input data file. Appendix B is a listing of input data as it appears in STEP formatted output.

The STEP program is stored under the permanent file name STEPLM, and the STEP input data is stored under the permanent file name STEPDATA. The STEP model requires a specification for increased

memory, CM120000, additional time, T5, and input output I010. The model was executed as a batch process, input from the INTERCOM in terminal to the ASD CYBER computer system.

The required execution time is approximately 3.2 CP seconds, and uses approximately 7.2 CRUS.

4.8 STEP OUTPUTS

This section briefly discusses the STEP output related to the analysis of the Common Multi-Mode Radar program. A complete listing of the output data is given in Appendix C.

In MODE 2, Global LCC Analyses, a detailed LCC analysis output is generated. The output list is broken down by aircraft and each aircraft listing contains a description of the radar components associated with that aircraft's radar system. The *local life-cycle cost of each equipment item in the configuration* is discussed. An example is shown in Figure 3.

```
          LOCAL LIFE-CYCLE COSTS

SUBSYSTEM:            C D(F-106)          QUANTITY/AIRCRAFT:   1

HARDWARE DEVELOPMENT COST        =      1313000.
S.E. DEVELOPMENT COST            =     14500000.
SOFTWARE DEVELOPMENT COST        =            0.
HARDWARE ACQUISITION COST        =     13115140.
S.E. ACQUISITION COST            =     28350000.
NONHARDWARE ACQUISITION COST     =      2118970.
INITIAL SPARES COST              =      1099801.
I-LEVEL MAINTENANCE COST         =       419985.
D-LEVEL MAINTENANCE COST         =       954730.
S.E. MAINTENANCE COST            =      4254100.
SHIPPING COST                    =        17910.
SOFTWARE MAINTENANCE COST        =            0.

TOTAL LIFE CYCLE COST            =     65633565.
```

Fig 3. Local CMMR Life-Cycle Cost Analysis

After the aircraft associated radar component Local LCC output is presented a Global LCC table is given. This accounts costs accumulated since the start of the STEP RUN, and it represents these life-cycle costs over all radar components cumulative through the latest aircraft program.

GLOBAL LIFE-CYCLE COSTS
ALL SUBSYSTEMS CUMULATIVE THROUGH CURRENT AIRCRAFT

HARDWARE DEVELOPMENT COST	=	4925[illegible]00.
S.E. DEVELOPMENT COST	=	93300[illegible]00.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	155[illegible]99402
S.E. ACQUISITION COST	=	196240[illegible].
NONHARDWARE ACQUISITION COST	=	25324425.
INITIAL SPARES COST	=	12243976.
I-LEVEL MAINTENANCE COST	=	2812945
D-LEVEL MAINTENANCE COST	=	5394690.
S.E. MAINTENANCE COST	=	2[illegible]435[illegible].
SHIPPING COST	=	241772.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL GLOBAL CYCLE COST	=	531318211.

Fig 4. Global CMMR Life-Cycle Cost Analysis

In the situation where standardization effects were not included in the Life-Cycle Cost Analysis, the Global LCC outputs, say, for hardware development costs (Fig 4., Line 1) would be the sum of all hardware development costs listed under individual local life-cycle cost output tables (Fig 3., Line1) would reflect one entry to the sum .

Results from the STEP analysis will be discussed in Section V.

SECTION V

RESULTS

This section presents the STEP model LCC results for the Common Multi-Mode Radar Program. Six runs of the STEP model were executed and all results will be discussed. The six runs are divided and discussed under the following categories:

a) Input data from PRICE model estimates

RUN 1: LCC figures accounting for use of standard systems across all applicable aircraft.

RUN 2: LCC figures accounting for use of individually developed systems for each aircraft.

b) Input data using ASD/ENA reliability estimates and cumulative operating hours values of 5000 hours and 1000 hours.

RUN 3: LCC figures accounting for use of standard systems across all applicable aircraft, cumulative operating time of 5000 hours.

RUN 4: LCC figures accounting for use of individually developed systems for each aircraft, cumulative operating time of 5000 hours.

RUN 5: LCC figures accounting for use of standard systems across all applicable aircraft, cumulative operating time of 1000 hours.

RUN 6: LCC figures accounting for use of individually

developed systems for each aircraft, cumulative operating time of 1000 hours.

5.1 STEP RESULTS - PRICE DATA INPUT

The input data for runs 1 and 2 was identical (a complete input listing is contained in Appendix A). The STEP model accounted for standardization in run 1 but did not account for standardization in run 2. The absolute value obtained for LCC projections are only estimates, based on current figures, and should be used for planning purposes only. The results quantify LCC differences between using standard versus non-standard radar subsystems.

The results from runs 1 and 2 of STEP are summarized in Table X. The figures in Table X reflect projected cost of the Common Multi-Mode Radar component for applicable aircraft programs, with standardization taken into account in Case 1. The total projected LCC benefit gained through the Common Multi-Mode Radar program is on the order of two billion dollars. Stated another way, using common (standard) radar subsystem to the maximum extent possible would cost half as much as using individually developed radar systems, assuming constant 1979 dollars.

To determine areas of cost savings, the cumulative global life-cycle cost figures can be compared. Table XI, Page 44, shows cumulative costs (over all aircraft programs) for areas of development, acquisition and support.

Figures from Table XI show most significant savings in the area of support equipment development, acquisition and maintenance.

TABLE X

GLOBAL LCC OF COMMON RADAR CONCEPTS

ASSUMPTIONS

- CASE 1: STANDARD SUBSYSTEM APPLIED IN EACH AIRCRAFT
- CASE 2: NEW SUBSYSTEM DEVELOPED IN EACH AIRCRAFT
- COST CHARACTERISTICS OF EACH NEW SUBSYSTEM AND STANDARD SUBSYSTEM ARE INITIALLY IDENTICAL

RADAR SUBSYSTEM	APPLICABLE AIRCRAFT	CASE 1 GLOBAL LCC	CASE 2 GLOBAL LCC	BENEFITS (Case 2 - Case 1) = D	BENEFITS % = D/Case 2
ANTENNA	F-106, F-16, B-52G/H,	176 M	472 M	296 M	63%
TRANSMITTER	F-4E, FB-111 F-111A/E/D/F	269 M	635 M	366 M	58%
RECEIVER/ EXCITER		350 M	726 M	376 M	52%
SIGNAL PROCESSOR		431 M	844 M	413 M	49%
COMPUTER		314 M	684 M	370 M	54%
TFR F-111	FB-111, F-111A/E/D/F	100 M	294 M	194 M	66%
CONTROLS/ DISPLAYS	F-106, B-52G/H	87 M	147 M	60 M	41%

TABLE XI

GLOBAL LCC BENEFITS OF COMMON RADAR DESIGN STANDARDIZATION

LCC ELEMENT	GLOBAL LIFE-CYCLE COST	
	STANDARD RADAR	UNIQUE RADAR
HARDWARE DEVELOPMENT	23 M	101 M
SUPPORT EQUIPMENT DEVELOPMENT	98 M	840 M
HARDWARE ACQUISITION	1373 M	1597 M
SUPPORT EQUIPMENT ACQUISITION	196 M	909 M
NON-HARDWARE ACQUISITION	36 M	253 M
INITIAL SPARES	52 M	78 M
I-LEVEL MAINTENANCE	12 M	20 M
D-LEVEL MAINTENANCE	28 M	46 M
SUPPORT EQUIPMENT MAINTENANCE	29 M	136 M
PACKING AND SHIPPING	2 M	3 M
TOTAL	1849 M	3983 M

It is important to factor into these projected figures, other Air Force considerations and plans for automatic generic test equipment. The model assumes that separate support equipment will have to be developed for each unique radar system and accounts accordingly. This may not reflect optimum support program decisions, however.

Another important area of savings lies in non-hardware acquisition. Recall that this term accounts for training, technical order publication and maintenance, and other one-time costs. Significant savings is available through the selecting of a standard radar system over uniquely developed systems.

Again, these figures are projected costs, in constant 1979 dollars, and represent best estimates for costs of future programs.

5.2 STEP RESULTS - INPUT PARAMETER VARIATIONS

To determine the sensitivity of the model to certain parameter, two input parameters were varied. The Mean Time Between Failure (MTBF) figures were charged to those used by ASD/EN, and then the cumulative operating hours were changed from 5000 to 1000. The PRICE and ASD MTBFs are shown in Table XII.

The results from these parameter variations are shown in Table XIII, page 47.

Results from all STEP runs are summarized for ease of comparison. There is no significant variation of any global life-cycle costing figures. Some variation does occur between spares and maintenance costs, but the total LCC difference is not significant

TABLE XII

COMMON RADAR SYSTEM MTBFS

SUBSYSTEM (STEPRUNS)	PRICE MTBF (hrs) (1, 2)	ASD MTBF (hrs) (3, 4, 5, 6)
ANTENNA	3788	860
TRANSMITTER	540	996
RECEIVER/EXCITER	900	900
SIGNAL PROCESSOR	650	440
COMPUTER	685	482
PULSE TRANSMITTER	806	803
C/W ILLUMINATOR (F-4G)	75	75
TFR (F-111)	1000	10000
CONTROL/DISPLAY (F-106)	763	10000
CONTROL/DISPLAY (B-52)	763	10000

TABLE XIII

COMMON MULTI-MODE RADAR - INPUT PARAMETER VARIATIONS

- ASD MTBF INPUT FOR RUNS 3, 4
- OPERATION TIME REFERRED TO 1000 HOURS FOR RUNS 5, 6

COMMON MULTI-MODE RADAR - GLOBAL LIFE CYCLE COSTS	5000 HOURS				1000 HOURS	
	RUN 1 * PRICE	RUN 2 ** PRICE	RUN 3 * ASD MTBF	RUN 4 ** ASD MTBF	RUN 5 * ASD MTBF	RUN 6 ** ASD MTBF
HARDWARE DEVELOPMENT	23 M	101 M	23 M	101 M	23 M	101 M
SUPPORT EQUIPMENT DEVELOPMENT	98 M	840 M	98 M	840 M	98 M	840 M
HARDWARE ACQUISITION	1373 M	1597 M	1373 M	1597 M	1373 M	1597 M
SUPPORT EQUIPMENT ACQUISITION	196 M	909 M	196 M	932 M	196 M	932 M
NON-HARDWARE ACQUISITION	36 M	253 M	36 M	253 M	36 M	253 M
INITIAL SPARES	52 M	78 M	56 M	85 M	52 M	85 M
I-LEVEL MAINTENANCE	12 M	20 M	14 M	23 M	12 M	23 M
D-LEVEL MAINTENANCE	28 M	46 M	31 M	52 M	28 M	52 M
SUPPORT EQUIPMENT MAINTENANCE	30 M	136 M	29 M	140 M	29 M	140 M
SHIPPING COST	2 M	3 M	2 M	2 M	2 M	2 M

* RUNS (1, 3, 5) REFLECT STANDARDIZATION

** RUNS (2, 4, 6) DO NOT REFLECT STANDARDIZATION

for the variation of input data used to obtain these runs.

The most significant individual variation noted is in the area of Intermediate level maintenance cost (line 7, runs 1 and 3). This factor accounts for maintenance at base level. Input estimates reflect 90% of the common radar system maintenance would be accomplished at base level (NAVIN input file, RTS - .9). The ASD MTBFs for the antenna, signal processor and computer are lower then PRICE MTBF estimates, and these subsystems would require more maintenance. The increase in I-level maintenance cost reflects the higher degree of maintenance required at I-level for a lower MTBF item.

No other parameter sensitivities were analyzed. Again, the STEP program evaluates and quantifies benefits due to standardization and results are estimates only. The accuracy of the output depends directly on the accuracy of the input.

The next section will discuss conclusions from the STEO application to the Common Multi-Mode Radar Program, and will provide recommendations for future STEP enhancements.

SECTION VI

CONCLUSIONS & RECOMMENDATIONS

6.1 SUMMARY OF CONCLUSIONS

Execution of the STEP model on the Common Multi-Mode Radar program has provided significant results in terms of projected cost benefits and STEP model experiences. In addition, the in-house use of the STEP model has provided valuable model experience and well-supported recommendation for the STEP model enhancement.

Two conclusions will be presented and discussed:

- Comparison of ASD and AFAL LCC savings figures.
- Effect of support equipment cost on systems LCC.

6.1.1 <u>ASD and AFAL Life-Cycle Cost Figures</u>

The ASD Independent Review Team (IRT) cost analysis of the common radar system projected a LCC benefit of 1/2 billion dollars.

The AFAL STEP analysis of the same program projected a LCC savings of 2 billion dollars.

To explain the differences in estimates, several aspects of the two LCC analyses must be stated:

- The ASD IRT used PRICE H and the AFLC Logistics Support Cost (LSC) models. The AFAL LCC analysis was done using the STEP model.

- AFAL STEP analysis assumed different equipment quantities and different equipment configurations from those used in ASD IRT

analysis. The different quantities are compared in Table XIV.

- The STEP model accounts for benefits of standardization (Learning Curve Effect, Duane Reliability Curve, Co-location of systems and associated support). These factors are not easily accounted for in the PRICE H and LSC models used by the IRT.
- The models used by the IRT are parametric, whereas the STEP model is an accounting model.

TABLE XIV

COMMON RADAR SUBSYSTEM QUANTITIES

SUBSYSTEM		QUANTITY IN ASD ANALYSIS	QUANTITY IN STEP ANALYSIS
ANTENNA		228	2626
TRANSMITTER		2000	2626
RECEIVER/EXCITER		2000	2626
SIGNAL PROCESSOR		2000	2626
COMPUTER		2000	2626
PULSE TRANSMITTER		228	228
CW ILLUMINATOR		----	685
TFR (F-111)		----	437
CONTROLS/DISPLAYS	F-106	269	269
	B-52	----	269

The quantity differences shown in Table XIV can be accounted for in the common radar system configuration differences. The ASD IRT

analysis was performed on an early configuration of the common radar system. Updated figures on quantity, applicable aircraft installation, and radar system configuration were made available for use on the STEP analysis.

Three common radar subsystems accounting for the largest quantity difference were the antenna, CW illuminator, and the F-111 Terrain Following Radar (TFR). The STEP LCC analysis cost estimates were based on 2400 more antenna subsystems than the ASD IRT study. In addition, the STEP LCC analysis included 685 CW illuminator and 437 F-111 TFR subsystems. These two subsystems were not included in the ASD IRT analysis. These three quantity differences above represent significant extra program cost, but also result in appreciable extra savings when standardization is taken into account. Based upon the quantity differences of the antenna, CW illuminator, and TFR, the STEP LCC results estimated a 750 million dollar savings.

Other subsystem quantity differences in the transmitter, receiver/exciter, signal processor, computer, and controls and displays account for another 250 million dollar projected savings.

When these projected cost savings due to subsystem quantity differences are added to the ASD figure of 1/2 billion dollars, the ASD projected savings figure can be adjusted to approximately 1.5 billion dollars.

The remaining difference between the STEP analysis savings projections (2 billion) and the adjusted ASD projected savings (1.5 billion) can be due to accounting and parametric variations in

name STEPDATA. The STEP model requires a specification for increased

the models used.

The ASD IRT LCC savings estimate, when adjusted to account for quantity differences, is within 33% of the STEP LCC analysis estimate. A portion of this 33% can be accounted for in model differences. The PRICE H and LSC models do not account for co-location of aircraft and resulting benefits due to common maintenance and support. The closeness of the adjusted ASD estimate with the STEP analysis estimate lends credibility to both results.

6.1.2 Support Equipment Costs

The figures in Table XI, page 44, project significant savings available in the support equipment areas of development, acquisition and maintenance. Recall that these figures compare the cost associated with using a single piece standard support equipment versus developing different pieces of support equipment to service and maintain each non-standard radar system.

Caution must be used when estimating support equipment costs as these costs can significantly effect the results. In the STEP analysis discussed in this report, the same costs were assumed for both standardized and unique support systems. The user must account for possible differences in support equipment costs - a standard support system may cost more than uniquely developed systems. There is no learning curve effect for support equipment because of the small quantities.

As with any cost estimating models, all input data should

be as accurate as possible. The support equipment figures were illustrated because the project cost savings due to standardization were significant. The STEP model can provide creditable results and these results must be used in context with other programs and management decisions.

6.2 RECOMMENDATIONS

The major result of this study was a demonstration of a quantitative approach to standardization issues. The STEP program can be used to analyze and compare alternatives within the three dimensions of avionics standardization--aircraft, equipment and time. These early results provide insight into common radar standardization and its payoffs.

After proving the cost savings of applying the common radar across several aircraft types, the first recommendation is to refine the STEP methodology--to develop an improved, easier-to-use process. STEP in its present form requires the user to have some knowledge of computer programming and debugging procedures. It is very time consuming and requires an extensive data base. STEP should be developed with a user interface to reduce time consuming data input procedures.

The STEP analysis should incorporate an insight into the level of standardization that would be most beneficial--whether to standardize at the LRU, SRU or piece parts levels.

The STEP User's Manual should incorporate a detailed definition

of all data inputs.

The STEP data inputs should be changed to incorporate readily available inputs, so that data inputs will not have to be manipulated before entry.

STEP should consider the time value of money. Inflation factors should be incorporated into the model.

Presently, the STEP program assumes that one support equipment unit per base is sufficient to accommodate all aircraft located at that base. However, one support equipment unit may not be sufficient to handle demand. A backlog of equipment to be repaired and tested may ensue. The "D-level support equipment requirements" equation accounts for additional sets that may be required to meet demand at the depot. "I-level support equipment requirements" equation should be changed to account for demand.

The STEP model outputs should include additional computations not included in the output. Included in the outputs should be easy-to-read grafts and charts summarization. For example, graphical output of the Long Run Cost Curve, generated from STEP outputs using total costs measured against the ten aircraft could be provided.

Small aircraft programs should utilize existing equipment to the maximum extent possible.

Software cost estimating capabilities should be included to project applicable software development and software maintenance costs.

To further validate the STEP model, it is recommended that STEP be applied to an on-going avionics system as a method of measuring

actual and predicted costs.

STEP should include costs for estimating the incremental cost associated with interfacing a standard into different types of aircraft. Further validation of the STEP process should include a sensitivity analysis of the model.

APPENDIX A

This appendix contains the complete computer listing of the input data to the STEP model. This file is the user input file to the STEP program.

```
COMMON RADAR STD LCC
 $RUN
 MODE=2,
 ISKIP=1,
 INPOUT=1,
 $END
 $STDIN
 SNHAF=35.0,
 LYF=40,
 ALLN=0.10,
 TAT=48.,
 RSTC=240.,
 RSTO=360.,
 DLY=1.65,
 BDSC=240.,
 BDSO=360.,
 DRC=720.,
 SBR=17.73,
 SBMC=2.28,
 SDR=34.16,
 SDMC=6.78,
 CSEM=0.01,
 SPSC=.64,
 SPSO=1.32,
 NBF=109,
 NBC=99,
 LC(1)=0.9,
 LC(2)=0.9,
 LC(3)=0.9,
 LCSE=1.0,
 HMS=140.,
 UTIL=0.7,
 NDS=1,
 $END
  10
```


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F-106

```
$AIRIN
IBY(1)=6,
IFY(1)=6,
RP(1)=23,
LIFE(1)=15,
NA(1)=228,
NB(1)=14,
IB(1,1)=2,7,8,14,15,16,17,18,19,21,22,23,24,25,
NBA(1,1)=18,18,2,15,15,30,15,32,18,2,17,18,24,4,
NM(1)=1,
NPHASE(1,1)=1,
SPO(1,1)=0.95,
XK(1)=3.0,
AO(1)=0.85,
NMPM(1,1)=17,
$END
```

F-4E

```
$AIRIN
IBY(2)=9,
IFY(2)=11,
RP(2)=23,
LIFE(2)=15,
NA(2)=685,
NB(2)=17,
IB(1,2)=1,2,3,4,5,6,8,11,13,100,101,102,103,104,105,107,108,
NBA(1,2)=23,24,72,96,54,61,36,2,10,18,48,12,24,48,34,115,8,
NM(2)=1,
NPHASE(1,2)=1,
SPO(1,2)=0.95,
NMPM(1,2)=15,
XK(2)=3.,
AO(2)=0.85,
$END
```

```
F-111A
 $AIRIN
 IBY(3)=11,
 IFY(3)=11,
 RP(3)=35,
 LIFE(3)=15,
 NA(3)=100,
 NB(3)=3,
 IB(1,3)=1,12,13,
 NBA(1,3)=14,85,1,
 NM(3)=1,
 NPHASE(1,3)=1,
 SPO(1,3)=0.95,
 XK(3)=3.,
 AO(3)=0.85,
 NMPM(1,3)=7,
 $END
```

```
F-111E
 $AIRIN
 IBY(4)=12,
 IFY(4)=12,
 RP(4)=35,
 LIFE(4)=15,
 NA(4)=82,
 NB(4)=5,
 IB(1,4)=1,6,13,28,109,
 NBA(1,4)=28,2,1,7,44,
 NM(4)=1,
 NPHASE(1,4)=1,
 SPO(1,4)=0.95,
 XK(4)=3.,
 AO(4)=0.85,
 NMPM(1,4)=7,
 $END
```

```
F-111D
 $AIRIN
 IBY(5)=12,
 IFY(5)=12,
 RP(5)=35,
 LIFE(5)=15,
 NA(5)=88,
 NB(5)=3,
 IB(1,5)=1,9,13,
 NBA(1,5)=7,78,3,
 NM(5)=1,
 NPHASE(1,5)=1,
 SPO(1,5)=0.95,
 XK(5)=3.,
 AO(5)=0.85,
 NMPM(1,5)=7,
 $END
```

```
F-111F
 $AIRIN
 IBY(6)=12,
 IFY(6)=12,
 RP(6)=35,
 LIFE(6)=15,
 NA(6)=98,
 NB(6)=3,
 IB(1,6)=6,28,106,
 NBA(1,6)=11,3,84,
 NM(6)=1,
 NPHASE(1,6)=1,
 SPO(1,6)=0.95,
 XK(6)=3.,
 AO(6)=0.85,
 NMPM(1,6)=7,
 $END
```

```
FB-111
 $AIRIN
 IBY(7)=11,
 IFY(7)=11,
 RP(7)=23,
 LIFE(7)=15,
 NA(7)=69,
 NB(7)=3,
 IB(1,7)=13,26,27,
 NBA(1,7)=1,26,42,
 NM(7)=1,
 NPHASE(1,7)=1,
 SPO(1,7)=0.95,
 XK(7)=2,
 AO(7)=0.85,
 NMPM(1,7)=8,
 $END
```

```
B-52G
 $AIRIN
 IBY(8)=7,
 IFY(8)=8,
 RP(8)=23,
 LIFE(8)=15,
 NA(8)=172,
 NB(8)=8,
 IB(1,8)=3,13,29,30,33,35,37,38,
 NBA(1,8)=14,3,28,14,28,28,28,29,
 NM(8)=1,
 NPHASE(1,8)=1,
 SPO(1,8)=0.95,
 XK(8)=2,
 AO(8)=0.85,
 NMPM(1,8)=4,
 $END
```

B-52H

```
 $AIRIN
 IBY(9)=8,
 IFY(9)=8,
 RP(9)=23,
 LIFE(9)=15,
 NA(9)=97,
 NB(9)=4,
 IB(1,9)=31,32,34,36,
 NBA(1,9)=13,28,28,28,
 NM(9)=1,
 NPHASE(1,9)=1,
 SPO(1,9)=0.95,
 XK(9)=2,
 AO(9)=0.85,
 NMPM(1,9)=4,
 $END
```

F-16

```
 $AIRIN
 IBY(10)=6,
 IFY(10)=11,
 RP(10)=12,
 LIFE(10)=15,
 NA(10)=738,
 NB(10)=4,
 IB(1,10)=11,13,20,100,
 NBA(1,10)=246,7,246,239,
 NM(10)=1,
 NPHASE(1,10)=1,
 SPO(1,10)=0.95,
 XK(10)=3.,
 AO(10)=0.85,
 NMPM(1,10)=17,
 $END
  10
```

```
ANTENNA
 $NAVIN
 IYA(1)=6,
 ITYPE(1)=2,
 FR(1,1)=40*0.000264,
 T(1,1)=40*5000.,
 PC(1)=63219.,
 NQ(1)=228,
 DC(1)=309000.,
 ISS(1)=1,
 ALPHA(1)=0.1,
 NLRU(1)=1,
 NSRU(1,1)=3,
 NPP(1,1)=0,
 FC(1,1)=1.0,
 FM(1,1)=1.0,
 RTS(1,1)=0.9,
 BRT(1,1)=5.0,
 DRT(1,1)=5.0,
 W(1,1)=83.5,
 DDP(1,1)=0.0,
 NSPDP(1,1)=0,
 LSEB(1)=1,
 LSED(1)=2,
 $END

TRANSMITTER
 $NAVIN
 IYA(2)=6,
 ITYPE(2)=2,
 FR(1,2)=40*0.00185,
 T(1,2)=40*5000.,
 PC(2)=98496.,
 NQ(2)=228.,
 DC(2)=636000.,
 ISS(2)=1,
 ALPHA(2)=0.1,
 NLRU(2)=1,
 NSRU(1,2)=5,
 NPP(1,2)=0,
 FC(1,2)=1.0,
 FM(1,2)=1.0,
 RTS(1,2)=0.9,
 DRT(1,2)=5.0,
 BRT(1,2)=5.0,
 W(1,2)=113.4,
 DDP(1,2)=0.0,
 NSPDP(1,2)=0,
 LSEB(2)=1,
 LSED(2)=2,
 $END
```

RECEIVER/EXCITER

```
 $NAVIN
 IYA(3)=6,
 ITYPE(3)=2,
 FR(1,3)=40*0.00111,
 T(1,3)=40*5000.,
 PC(3)=139423.,
 NQ(3)=228.,
 DC(3)=819000.,
 ISS(3)=1,
 ALPHA(3)=0.1,
 NLRU(3)=1,
 NSRU(1,3)=8,
 NPP(1,3)=0,
 FC(1,3)=1.0,
 FM(1,3)=1.0,
 RTS(1,3)=0.9,
 BRT(1,3)=5.0,
 DRT(1,3)=5.0,
 W(1,3)=45.,
 DDP(1,3)=0.0,
 NSPDP(1,3)=0,
 LSEB(3)=1,
 LSED(3)=2,
 $END
```

SIGNAL PROCESSOR

```
 $NAVIN
 IYA(4)=6,
 ITYPE(4)=2,
 FR(1,4)=40*0.00154,
 T(1,4)=40*5000.,
 PC(4)=175418.,
 NQ(4)=228.,
 DC(4)=851000.,
 ISS(4)=1,
 ALPHA(4)=0.1,
 NLRU(4)=1,
 NSRU(1,4)=4,
 NPP(1,4)=0,
 FC(1,4)=1.0,
 FM(1,4)=1.0,
 RTS(1,4)=0.9,
 BRT(1,4)=5.0,
 DRT(1,4)=5.0,
 W(1,4)=54.3,
 DDP(1,4)=0.0,
 NSPDP(1,4)=0,
 LSEB(4)=1,
 LSED(4)=2,
 $END
```

COMPUTER

```
 $NAVIN
 IYA(5)=6,
 ITYPE(5)=2,
 FR(1,5)=40*0.00146,
 T(1,5)=40*5000.,
 PC(5)=121107.,
 NQ(5)=228.,
 DC(5)=592000.,
 ISS(5)=1,
 ALPHA(5)=0.1,
 NLRU(5)=1,
 NSRU(1,5)=4,
 NPP(1,5)=0,
 FC(1,5)=1.0,
 FM(1,5)=1.0,
 RTS(1,5)=0.9,
 BRT(1,5)=5.0,
 DRT(1,5)=5.0,
 W(1,5)=43.7,
 DDP(1,5)=0.0,
 NSPDP(1,5)=0,
 LSEB(5)=1,
 LSED(5)=2,
 $END
```

PULSE TRANSMITTER

```
 $NAVIN
 IYA(6)=6,
 ITYPE(6)=2,
 FR(1,6)=40*0.00124,
 T(1,6)=40*5000.,
 PC(6)=65350.,
 NQ(6)=228,
 DC(6)=405000.,
 ISS(6)=1,
 ALPHA(6)=0.1,
 NLRU(6)=1,
 NSRU(1,6)=2,
 NPP(1,6)=0,
 FC(1,6)=1.0,
 FM(1,6)=1.0,
 RTS(1,6)=0.9,
 BRT(1,6)=5.0,
 DRT(1,6)=5.0,
 W(1,6)=50.0,
 DDP(1,6)=0.0,
 NSPDP(1,6)=0,
 LSEB(6)=1,
 LSED(6)=2,
 $END
```

```
C D(F-106)
 $NAVIN
 IYA(7)=6,
 ITYPE(7)=2,
 FR(1,7)=40*0.00131,
 T(1,7)=40*5000.,
 PC(7)=60542.,
 NQ(7)=269.,
 DC(7)=1313000.,
 ISS(7)=1,
 ALPHA(7)=0.1,
 NLRU(7)=1,
 NSRU(1,7)=1,
 NPP(1,7)=0,
 FC(1,7)=1.0,
 FM(1,7)=1.0,
 RTS(1,7)=0.9,
 BRT(1,7)=5.0,
 DRT(1,7)=5.0,
 W(1,7)=30.,
 DDP(1,7)=0.0,
 NSPDP(1,7)=0,
 LSEB(7)=1,
 LSED(7)=2,
 $END


C W ILLUMINATOR F-4G
 $NAVIN
 IYA(8)=6,
 ITYPE(8)=2,
 FR(1,8)=40*.01333,
 T(1,8)=40*5000.,
 PC(8)=69000.,
 NQ(8)=685.,
 DC(8)=4900000.,
 ISS(8)=1,
 ALPHA(8)=0.1,
 NLRU(8)=1,
 NSRU(1,8)=3,
 NPP(1,8)=0,
 FC(1,8)=1.0,
 FM(1,8)=1.0,
 RTS(1,8)=0.9,
 BRT(1,8)=5.0,
 DRT(1,8)=5.0,
 W(1,8)=60.,
 DDP(1,8)=0.0,
 NSPDP(1,8)=0,
 LSEB(8)=1,
 LSED(8)=2,
 $END
```

```
TFR F-111
 $NAVIN
 IYA(9)=6,
 ITYPE(9)=2,
 FR(1,9)=40*0.001,
 T(1,9)=40*5000.,
 PC(9)=185000.,
 NQ(9)=437.,
 DC(9)=12000000.,
 ISS(9)=1,
 ALPHA(9)=0.1,
 NLRU(9)=1,
 NSRU(1,9)=3,
 NPP(1,9)=0,
 FC(1,9)=1.0,
 FM(1,9)=1.0,
 RTS(1,9)=0.9,
 BRT(1,9)=5.0,
 DRT(1,9)=5.0,
 W(1,9)=145.,
 DDP(1,9)=0.0,
 NSPDP(1,9)=0,
 LSEB(9)=1,
 LSED(9)=2,
 $END
```

```
C D(B-52G,H)
 $NAVIN
 IYA(10)=6,
 ITYPE(10)=2,
 FR(1,10)=40*0.00131,
 T(1,10)=40*5000.,
 PC(10)=60542.,
 NQ(10)=269.,
 DC(10)=1313000.,
 ISS(10)=1,
 ALPHA(10)=0.1,
 NLRU(10)=1,
 NSRU(1,10)=1,
 NPP(1,10)=0,
 FC(1,10)=1.0,
 FM(1,10)=1.0,
 RTS(1,10)=0.9,
 BRT(1,10)=5.0,
 DRT(1,10)=5.0,
 W(1,10)=30.0,
 DDP(1,10)=0.0,
 NSPDP(1,10)=0,
 LSEB(10)=1,
 LSED(10)=2,
 $END
```

```
  2
COM RADAR I-LEV S.E.
 $SEIN
 SED(1)=13000000.,
 ISE(1)=1,
 PSE(1)=1700000.,
 NOSE(1)=1,
 USET(1)=0.0,
 NDEP(1)=0,
 NBSE(1)=0,
 $END
COM RADAR D-LEV S.E.
 $SEIN
 SED(2)=1000000.,
 ISE(2)=1,
 PSE(2)=2280000.,
 NOSE(2)=1,
 USET(2)=0.0,
 NDEP(2)=0,
 NBSE(2)=0,
 $END

  10
 $APPIN
 N=1,
 NSSYS=7,
 NN(1)=7*1,
 ISI(1,1)=1,
 ISI(1,2)=2,
 ISI(1,3)=3,
 ISI(1,4)=4,
 ISI(1,5)=5,
 ISI(1,6)=6,
 ISI(1,7)=7,
 NRO(1)=7*0,
 TO(1,1,1)=1.8,
 TO(1,1,2)=1.8,
 TO(1,1,3)=1.8,
 TO(1,1,4)=1.8,
 TO(1,1,5)=1.8,
 TO(1,1,6)=1.8,
 TO(1,1,7)=1.8,
 PA(1,1,1)=0.0,
 PA(1,1,2)=0.0,
 PA(1,1,3)=0.0,
 PA(1,1,4)=0.0,
 PA(1,1,5)=0.0,
 PA(1,1,6)=0.0,
 PA(1,1,7)=0.0,
 $END
```

```
$APPIN
N=10,
NSSYS=5,
NN(1)=5*1,
ISI(1,1)=1,
ISI(1,2)=2,
ISI(1,3)=3,
ISI(1,4)=4,
ISI(1,5)=5,
NRO(1)=5*0,
TO(1,1,1)=1.8,
TO(1,1,2)=1.8,
TO(1,1,3)=1.8,
TO(1,1,4)=1.8,
TO(1,1,5)=1.8,
PA(1,1,1)=0.0,
PA(1,1,2)=0.0,
PA(1,1,3)=0.0,
PA(1,1,4)=0.0,
PA(1,1,5)=0.0,
$END
```

```
$APPIN
N=8,
NSSYS=6,
NN(1)=5*0,1,
ISI(1,6)=10,
NRO(1)=5*1,0,
NR(1,1)=2,
NR(1,2)=2,
NR(1,3)=2,
NR(1,4)=2,
NR(1,5)=2,
ISIR(1,1,1)=1,1,
ISIR(1,1,2)=2,2,
ISIR(1,1,3)=3,3,
ISIR(1,1,4)=4,4,
ISIR(1,1,5)=5,5,
TO(1,1,1)=10.0,
TO(1,1,2)=10.0,
TO(1,1,3L=10.0,
TO(1,1,4)=10.0,
TO(1,1,5)=10.0,
TO(1,1,6)=10.0,
PA(1,1,1)=0.0,
PA(1,1,2)=0.0,
PA(1,1,3)=0.0,
PA(1,1,4)=0.0,
PA(1,1,5)=0.0,
PA(1,1,6)=0.0,
$END
```

```
$APPIN
N=9,
NSSYS=6,
NN(1)=5*0,1,
ISI(1,6)=10,
NRO(1)=5*1,0,
NR(1,1)=2,
NR(1,2)=2,
NR(1,3)=2,
NR(1,4)=2,
NR(1,5)=2,
ISIR(1,1,1)=1,1,
ISIR(1,1,2)=2,2,
ISIR(1,1,3)=3,3,
ISIR(1,1,4)=4,4,
ISIR(1,1,5)=5,5,
TO(1,1,1)=10.0,
TO(1,1,2)=10.0,
TO(1,1,3)=10.0,
TO(1,1,4)=10.0,
TO(1,1,5)=10.0,
TO(1,1,6)=10.0,
PA(1,1,1)=0.0,
PA(1,1,2)=0.0,
PA(1,1,3)=0.0,
PA(1,1,4)=0.0,
PA(1,1,5)=0.0,
PA(1,1,6)=0.0,
$END

$APPIN
N=2,
NSSYS=6,
NN(1)=6*1,
ISI(1,1)=1,
ISI(1,2)=2,
ISI(1,3)=3,
ISI(1,4)=4,
ISI(1,5)=5,
ISI(1,6)=8,
NRO(1)=6*0,
TO(1,1,1)=1.6,
TO(1,1,2)=1.6,
TO(1,1,3)=1.6,
TO(1,1,4)=1.6,
TO(1,1,5)=1.6,
TO(1,1,6)=0.17,
PA(1,1,1)=0.0,
PA(1,1,2)=0.0,
PA(1,1,3)=0.0,
PA(1,1,4)=0.0,
PA(1,1,5)=0.0,
PA(1,1,6)=0.0,
$END
```

```
$APPIN
N=7,
NSSYS=6,
NN(1)=6*1,
ISI(1,1)=1,
ISI(1,2)=2,
ISI(1,3)=3,
ISI(1,4)=4,
ISI(1,5)=5,
ISI(1,6)=9,
NRO(1)=6*0,
TO(1,1,1)=3.0,
TO(1,1,2)=3.0,
TO(1,1,3)=3.0,
TO(1,1,4)=3.0,
TO(1,1,5)=3.0,
TO(1,1,6)=3.0,
PA(1,1,1)=0.0,
PA(1,1,2)=0.0,
PA(1,1,3)=0.0,
PA(1,1,4)=0.0,
PA(1,1,5)=0.0,
PA(1,1,6)=0.0,
$END
```

```
$APPIN
N=3,
NSSYS=6,
NN(1)=6*1,
ISI(1,1)=1,
ISI(1,2)=2,
ISI(1,3)=3,
ISI(1,4)=4,
ISI(1,5)=5,
ISI(1,6)=9,
NRO(1)=6*0,
TO(1,1,1)=3.0,
TO(1,1,2)=3.0,
TO(1,1,3)=3.0,
TO(1,1,4)=3.0,
TO(1,1,5)=3.0,
TO(1,1,6)=3.0,
PA(1,1,1)=0.0,
PA(1,1,2)=0.0,
PA(1,1,3)=0.0,
PA(1,1,4)=0.0,
PA(1,1,5)=0.0,
PA(1,1,6)=0.0,
$END
```

```
$APPIN
N=4,
NSSYS=6,
NN(1)=6*1,
ISI(1,1)=1,
ISI(1,2)=2,
ISI(1,3)=3,
ISI(1,4)=4,
ISI(1,5)=5,
ISI(1,6)=9,
NRO(1)=6*0,
TO(1,1,1)=3.0,
TO(1,1,2)=3.0,
TO(1,1,3)=3.0,
TO(1,1,4)=3.0,
TO(1,1,5)=3.0,
TO(1,1,6)=3.0,
PA(1,1,1)=0.0,
PA(1,1,2)=0.0,
PA(1,1,3)=0.0,
PA(1,1,4)=0.0,
PA(1,1,5)=0.0,
PA(1,1,6)=0.0,
$END

$APPIN
N=5,
NSSYS=6,
NN(1)=6*1,
ISI(1,1)=1,
ISI(1,2)=2,
ISI(1,3)=3,
ISI(1,4)=4,
ISI(1,5)=5,
ISI(1,6)=9,
NRO(1)=6*0,
TO(1,1,1)=3.0,
TO(1,1,2)=3.0,
TO(1,1,3)=3.0,
TO(1,1,4)=3.0,
TO(1,1,5)=3.0,
TO(1,1,6)=3.0,
PA(1,1,1)=0.0,
PA(1,1,2)=0.0,
PA(1,1,3)=0.0,
PA(1,1,4)=0.0,
PA(1,1,5)=0.0,
PA(1,1,6)=0.0,
$END
```

```
$APPIN
N=6,
NSSYS=6,
NN(1)=6*1,
ISI(1,1)=1,
ISI(1,2)=2,
ISI(1,3)=3,
ISI(1,4)=4,
ISI(1,5)=5,
ISI(1,6)=9,
NRO(1)=6*0,
TO(1,1,1)=3.0,
TO(1,1,2)=3.0,
TO(1,1,3)=3.0,
TO(1,1,4)=3.0,
TO(1,1,5)=3.0,
TO(1,1,6)=3.0,
PA(1,1,1)=0.0,
PA(1,1,2)=0.0,
PA(1,1,3)=0.0,
PA(1,1,4)=0.0,
PA(1,1,5)=0.0,
PA(1,1,6)=0.0,
$END
```

APPENDIX B

This appendix contains the first portion of the STEP output. The listing presented is simply the input data reformatted and provided as STEP output. It is obtained by setting INPOUT=1 in the input file.

STANDARDIZATION EVALUATION PROGRAM
(STEP)

COMMON RADAR STD LCC

MODE = 2: GLOBAL LCC ANALYSIS

ISKIP = 0: STANDARDIZATION EFFECTS REFLECTED IN LCC EVELUATIONS

STEP INPUT DATA

STANDARD FACTORS

LYF:	ANALYSIS TIME SPAN (YEARS)	40
ALLN:	AVAILABILITY ALLOCATION FACTOR	.10
BDSC:	CONUS RESUPPLY TIME (HOURS)	240.
BDSO:	OVERSEAS RESUPPLY TIME (HOURS)	360.
BOSC:	CONUS SHIPPING TIME TO DEPOT (HOURS)	240.
BOSO:	OVERSEAS SHIPPING TIME TO DEPOT (HOURS)	360.
TAT:	BASE REPAIR TURNAROUND TIME (HOURS)	48.
DRC:	DEPOT REPAIR TURNAROUND TIME (HOURS)	720.
DLY:	DEPOT STOCK SAFETY FACTOR (STANDARD DEVIATIONS)	1.65
SBR:	BASE LABOR RATE (DOLLARS/MANHOUR)	17.73
SBMC:	BASE MATERIALS CONSUMPTION RATE (DOLLARS/MANHOUR)	2.25
SDR:	DEPOT LABOR RATE (DOLLARS/MANHOUR)	34.15
SDMC:	DEPOT MATERIALS CONSUMPTION RATE (DOLLARS/MANHOUR)	6.75
CSEM:	SUPPORT EQUIPMENT MAINTENANCE FACTOR	.01
SPSC:	CONUS SHIPPING COST (DOLLARS/POUND)	.64
SPSO:	OVERSEAS SHIPPING COST (DOLLARS/POUND)	1.32
NBF:	TOTAL-NUMBER OF BASE LOCATIONS	139
NBC:	NUMBER OF CONUS BASE LOCATIONS	99
LC(1):	PRODUCTION LEARNING CURVE (RADIO EQUIPMENT)	.90
LC(2):	PRODUCTION LEARNING CURVE (RADAR EQUIPMENT)	.90
LC(3):	PRODUCTION LEARNING CURVE (INERTIAL EQUIPMENT)	.90
LCSE:	PRODUCTION LEARNING CURVE (SUPPORT EQUIPMENT)	1.00
HMS:	DEPOT OPERATION FACTOR (HOURS/MONTH/SHIFT)	140
NDS:	NUMBER OF SHIFTS AT DEPOT	1
UTIL:	SUPPORT EQUIPMENT UTILIZATION FACTOR	.70
SNHAF:	NONHARDWARE ACQUISITION FACTOR	35.

AIRCRAFT FILE

F-106
AIRCRAFT INPUT DATA

IBY:	INITIAL YEAR OF PRODUCTION/RETROFIT	6
IFY:	FINAL YEAR OF PRODUCTION/RETROFIT	6
RP:	PRODUCTION/RETROFIT RATE (AIRCRAFT/MONTH)	23.
NA:	TOTAL NUMBER OF AIRCRAFT	228
LIFE:	OPERATIONAL LIFE (YEARS)	15.
XK:	RELIABILITY K-FACTOR (BASELINE MTBF/OPERATIONAL MTBF)	3.0
AO:	AVAILABILITY OBJECTIVE	.950
NM:	NUMBER OF MISSIONS	1

		MISSION 1
NPHASE:	NUMBER OF PHASES	1
NMPM:	MISSIONS PER MONTH	17
SPO:	SUCCESS PROBABILITY OBJECTIVE	950

NB: NUMBER OF BASE LOCATIONS 14

IB:	BASE LOCATION INDEX	2	7	8	14	15	16	17	18	19	21
NBA:	AIRCRAFT AT BASE	18	18	2	15	15	30	15	32	18	2
IB:	BASE LOCATION INDEX	22	23	24	25						
NBA:	AIRCRAFT AT BASE	17	18	24	4						

AIRCRAFT FILE

F-4L
AIRCRAFT INPUT DATA

IBY:	INITIAL YEAR OF PRODUCTION/RETROFIT	9
IFY:	FINAL YEAR OF PRODUCTION/RETROFIT	11
RP:	PRODUCTION/RETROFIT RATE (AIRCRAFT/MONTH)	23.
NA:	TOTAL NUMBER OF AIRCRAFT	685
LIFE:	OPERATIONAL LIFE (YEARS)	15.
XK:	RELIABILITY K-FACTOR (BASELINE MTBF/OPERATIONAL MTBF)	3.0
AO:	AVAILABILITY OBJECTIVE	.950
NM:	NUMBER OF MISSIONS	1

MISSION 1

NPHASE:	NUMBER OF PHASES	1
NMPM:	MISSIONS PER MONTH	15
SPO:	SUCCESS PROBABILITY OBJECTIVE	.950

NB: NUMBER OF BASE LOCATIONS 17

IB:	BASE LOCATION INDEX	1	2	3	4	5	5	8	11	13	100
NBA:	AIRCRAFT AT BASE	23	24	72	96	54	61	35	2	10	18

IB:	BASE LOCATION INDEX	101	102	103	104	105	107	108
NBA:	AIRCRAFT AT BASE	48	12	24	48	34	115	9

```
                    AIRCRAFT FILE

                       F-111A
                 AIRCRAFT INPUT DATA


IBY:    INITIAL YEAR OF PRODUCTION/RETROFIT                           11
IFY:    FINAL YEAR OF PRODUCTION/RETROFIT                             11
RP:     PRODUCTION/RETROFIT RATE (AIRCRAFT/MONTH)                     35.
NA:     TOTAL NUMBER OF AIRCRAFT                                     100
LIFE:   OPERATIONAL LIFE (YEARS)                                      15.
XK:     RELIABILITY K-FACTOR (BASELINE MTBF/OPERATIONAL MTBF)        3.0
AO:     AVAILABILITY OBJECTIVE                                        .950
NM:     NUMBER OF MISSIONS                                             1


                            MISSION  1
NPHASE: NUMBER OF PHASES         1
NMPM:   MISSIONS PER MONTH       7
SPO:    SUCCESS PROBABILITY      .950
          OBJECTIVE


NB:    NUMBER OF BASE LOCATIONS      3


IB:    BASE LOCATION INDEX        1      12      13
NBA:   AIRCRAFT AT BASE          14      35       1
```

AIRCRAFT FILE

F-111E
AIRCRAFT INPUT DATA

```
IBY:    INITIAL YEAR OF PRODUCTION/RETROFIT                              12
IFY:    FINAL YEAR OF PRODUCTION/RETROFIT                                12
RP:     PRODUCTION/RETROFIT RATE (AIRCRAFT/MONTH)                        35.
NA:     TOTAL NUMBER OF AIRCRAFT                                         82
LIFE:   OPERATIONAL LIFE (YEARS)                                         15.
XK:     RELIABILITY K-FACTOR (BASELINE MTBF/OPERATIONAL MTBF)             3.0
AU:     AVAILABILITY OBJECTIVE                                             .853
NM:     NUMBER OF MISSIONS                                                1


                                 MISSION  1
NPHASE: NUMBER OF PHASES          1
NMPM:    MISSIONS PER MONTH       7
SPO:     SUCCESS PROBABILITY       .958
            OBJECTIVE


NB:    NUMBER OF BASE LOCATIONS        5


IB:    BASE LOCATION INDEX        1      5     13     26    109
NBA:   AIRCRAFT AT BASE          28      2      1      7     44
```

AIRCRAFT FILE

F-111D
AIRCRAFT INPUT DATA

```
IBY:    INITIAL YEAR OF PRODUCTION/RETROFIT                           12
IFY:    FINAL YEAR OF PRODUCTION/RETROFIT                             12
KP:     PRODUCTION/RETROFIT RATE (AIRCRAFT/MONTH)                     35.
NA:     TOTAL NUMBER OF AIRCRAFT                                      88
LIFE:   OPERATIONAL LIFE (YEARS)                                      15.
XK:     RELIABILITY K-FACTOR (BASELINE MTBF/OPERATIONAL MTBF)          3.0
AO:     AVAILABILITY OBJECTIVE                                          .850
NM:     NUMBER OF MISSIONS                                             1


                          MISSION  1
NPHASE: NUMBER OF PHASES          1
NMPM:    MISSIONS PER MONTH       7
SPO:     SUCCESS PROBABILITY        .950
           OBJECTIVE


NB:    NUMBER OF BASE LOCATIONS        3


IB:    BASE LOCATION INDEX            1      9      13
NBA:   AIRCRAFT AT BASE               7     78       3
```

AIRCRAFT FILE

F-111F
AIRCRAFT INPUT DATA

IBY:	INITIAL YEAR OF PRODUCTION/RETROFIT	12
IFY:	FINAL YEAR OF PRODUCTION/RETROFIT	12
KP:	PRODUCTION/RETROFIT RATE (AIRCRAFT/MONTH)	35.
NA:	TOTAL NUMBER OF AIRCRAFT	98
LIFL:	OPERATIONAL LIFE (YEARS)	15.
XK:	RELIABILITY K-FACTOR (BASELINE MTBF/OPERATIONAL MTBF)	3.0
AO:	AVAILABILITY OBJECTIVE	.850
NM:	NUMBER OF MISSIONS	1

MISSION 1

NPHASE:	NUMBER OF PHASES	1
NMPM:	MISSIONS PER MONTH	7
SPO:	SUCCESS PROBABILITY OBJECTIVE	.950

NB:	NUMBER OF BASE LOCATIONS	3

IB:	BASE LOCATION INDEX	6	29	105
NBA:	AIRCRAFT AT BASE	11	3	84

AIRCRAFT FILE

FB-111
AIRCRAFT INPUT DATA

IBY:	INITIAL YEAR OF PRODUCTION/RETROFIT	11
IFY:	FINAL YEAR OF PRODUCTION/RETROFIT	11
RP:	PRODUCTION/RETROFIT RATE (AIRCRAFT/MONTH)	23.
NA:	TOTAL NUMBER OF AIRCRAFT	59
LIFE:	OPERATIONAL LIFE (YEARS)	15.
XK:	RELIABILITY K-FACTOR (BASELINE MTBF/OPERATIONAL MTBF)	2.0
AO:	AVAILABILITY OBJECTIVE	.950
NM:	NUMBER OF MISSIONS	1

		MISSION 1
NPHASE:	NUMBER OF PHASES	1
NMPM:	MISSIONS PER MONTH	8
SPO:	SUCCESS PROBABILITY OBJECTIVE	.950

NB:	NUMBER OF BASE LOCATIONS	3

IB:	BASE LOCATION INDEX	13	25	27
NBA:	AIRCRAFT AT BASE	1	26	42

AD-A079 678 AIR FORCE AVIONICS LAB WRIGHT-PATTERSON AFB OH F/G 17/9
A STANDARDIZATION EVALUATION POTENTIAL STUDY OF THE COMMON MULT--ETC(U)
NOV 79 J G JOLDA, J L THOMAS
UNCLASSIFIED AFAL-TR-79-1195 NL

2 OF 3
ADA 079678

AIRCRAFT FILE

B-52G
AIRCRAFT INPUT DATA

IBY:	INITIAL YEAR OF PRODUCTION/RETROFIT	7
IFY:	FINAL YEAR OF PRODUCTION/RETROFIT	8
RP:	PRODUCTION/RETROFIT RATE (AIRCRAFT/MONTH)	23.
NA:	TOTAL NUMBER OF AIRCRAFT	172
LIFE:	OPERATIONAL LIFE (YEARS)	15.
XK:	RELIABILITY K-FACTOR (BASELINE MTBF/OPERATIONAL MTBF)	2.0
AO:	AVAILABILITY OBJECTIVE	.850
NM:	NUMBER OF MISSIONS	1

MISSION 1

NPHASE:	NUMBER OF PHASES	1
NMPM:	MISSIONS PER MONTH	4
SPO:	SUCCESS PROBABILITY OBJECTIVE	.950

NB: NUMBER OF BASE LOCATIONS 8

IB:	BASE LOCATION INDEX	3	13	29	30	33	35	37	38
NBA:	AIRCRAFT AT BASE	14	3	28	14	28	28	28	29

```
                     AIRCRAFT FILE

                         B-52H
                   AIRCRAFT INPUT DATA


IBY:    INITIAL YEAR OF PRODUCTION/RETROFIT                              8
IFY:    FINAL YEAR OF PRODUCTION/RETROFIT                                8
KP:     PRODUCTION/RETROFIT RATE (AIRCRAFT/MONTH)                       23.
NA:     TOTAL NUMBER OF AIRCRAFT                                        97
LIFE:   OPERATIONAL LIFE (YEARS)                                        15.
XK:     RELIABILITY K-FACTOR (BASELINE MTBF/OPERATIONAL MTBF)            2.0
AO:     AVAILABILITY OBJECTIVE                                            .850
NM:     NUMBER OF MISSIONS                                               1


                              MISSION  1
NPHASE: NUMBER OF PHASES         1
NMPM:    MISSIONS PER MONTH      4
SPO:     SUCCESS PROBABILITY      .950
           OBJECTIVE


NB:    NUMBER OF BASE LOCATIONS        4


IB:    BASE LOCATION INDEX        31     32     34     36
NBA:   AIRCRAFT AT BASE           13     28     28     28
```

AIRCRAFT FILE

F-16
AIRCRAFT INPUT DATA

IBY:	INITIAL YEAR OF PRODUCTION/RETROFIT	6
IFY:	FINAL YEAR OF PRODUCTION/RETROFIT	11
RP:	PRODUCTION/RETROFIT RATE (AIRCRAFT/MONTH)	12.
NA:	TOTAL NUMBER OF AIRCRAFT	738
LIFE:	OPERATIONAL LIFE (YEARS)	15.
XK:	RELIABILITY K-FACTOR (BASELINE MTBF/OPERATIONAL MTBF)	3.0
AO:	AVAILABILITY OBJECTIVE	.850
NM:	NUMBER OF MISSIONS	1

MISSION 1

NPHASE:	NUMBER OF PHASES	1
NMPM:	MISSIONS PER MONTH	17
SPO:	SUCCESS PROBABILITY OBJECTIVE	.950

NB: NUMBER OF BASE LOCATIONS 4

IB:	BASE LOCATION INDEX	11	13	20	10[illegible]
NBA:	AIRCRAFT AT BASE	246	7	2[illegible]5	239

EQUIPMENT FILE

ANTENNA
EQUIPMENT INPUT DATA

IYA:	INITIAL YEAR AVAILABLE	5
ITYPE:	EQUIPMENT TECHNOLOGY INDEX	2
PC:	PRESENT COST (DOLLARS)	63213.
NQ:	PRESENT PRODUCTION QUANTITY	228
DC:	DEVELOPMENT COST (DOLLARS)	303000.
ISS:	INVENTORY INTRODUCTION SWITCH	1
ALPHA:	RELIABILITY IMPROVEMENT FACTOR	.10
NLRU:	NUMBER OF LINE REPLACEABLE UNITS	1

		LRU 1
NSRU:	NUMBER OF SRUS	3
NPP:	NUMBER OF PARTS	0
FC:	FRACTIONAL COST	1.000
FM:	FRACTIONAL FAILURE RATE	1.000
RTS:	FRACTION BASE REPARABLE	.30
BRT:	BASE REPAIR TIME (HOURS)	5.0
DRT:	DEPOT REPAIR TIME (HOURS)	5.0
W:	WEIGHT (POUNDS)	83.5
DDP:	DEPOT DEMANDS/HOUR	0.00000
NSPDP:	CURRENT DEPOT SPARES	0

INTERMEDIATE SUPPORT EQUIPMENT: COM RADAR I-LEV S.E.

DEPOT SUPPORT EQUIPMENT: COM RADAR D-LEV S.E.

YEAR	CUMULATIVE OPERATING HOURS		FAILURE RATE (FAILURES/HOURS)	
1	T(1, 1)	5000.	FR(1, 1)	.000254
2	T(2, 1)	5000.	FR(2, 1)	.000254
3	T(3, 1)	5000.	FR(3, 1)	.000254
4	T(4, 1)	5000.	FR(4, 1)	.000254
5	T(5, 1)	5000.	FR(5, 1)	.000254
6	T(6, 1)	5000.	FR(6, 1)	.000254
7	T(7, 1)	5000.	FR(7, 1)	.000254
8	T(8, 1)	5000.	FR(8, 1)	.000254
9	T(9, 1)	5000.	FR(9, 1)	.000254
10	T(10, 1)	5000.	FR(10, 1)	.000254
11	T(11, 1)	5000.	FR(11, 1)	.000254
12	T(12, 1)	5000.	FR(12, 1)	.000254
13	T(13, 1)	5000.	FR(13, 1)	.000254
14	T(14, 1)	5000.	FR(14, 1)	.000254
15	T(15, 1)	5000.	FR(15, 1)	.000254
16	T(16, 1)	5000.	FR(16, 1)	.000254
17	T(17, 1)	5000.	FR(17, 1)	.000254
18	T(18, 1)	5000.	FR(18, 1)	.000254
19	T(19, 1)	5000.	FR(19, 1)	.000254
20	T(20, 1)	5000.	FR(20, 1)	.000254
21	T(21, 1)	5000.	FR(21, 1)	.000254
22	T(22, 1)	5000.	FR(22, 1)	.000254
23	T(23, 1)	5000.	FR(23, 1)	.000254
24	T(24, 1)	5000.	FR(24, 1)	.000254
25	T(25, 1)	5000.	FR(25, 1)	.000254
26	T(26, 1)	5000.	FR(26, 1)	.000254
27	T(27, 1)	5000.	FR(27, 1)	.000254
28	T(28, 1)	5000.	FR(28, 1)	.000254
29	T(29, 1)	5000.	FR(29, 1)	.000254
30	T(30, 1)	5000.	FR(30, 1)	.000254
31	T(31, 1)	5000.	FR(31, 1)	.000254
32	T(32, 1)	5000.	FR(32, 1)	.000254
33	T(33, 1)	5000.	FR(33, 1)	.000254
34	T(34, 1)	5000.	FR(34, 1)	.000254
35	T(35, 1)	5000.	FR(35, 1)	.000254
36	T(36, 1)	5000.	FR(36, 1)	.000254
37	T(37, 1)	5000.	FR(37, 1)	.000254
38	T(38, 1)	5000.	FR(38, 1)	.000254
39	T(39, 1)	5000.	FR(39, 1)	.000254
40	T(40, 1)	5000.	FR(40, 1)	.000254

EQUIPMENT FILE

TRANSMITTER
EQUIPMENT INPUT DATA

IYA:	INITIAL YEAR AVAILABLE	5
ITYPE:	EQUIPMENT TECHNOLOGY INDEX	2
PC:	PRESENT COST (DOLLARS)	98495.
NQ:	PRESENT PRODUCTION QUANTITY	228
DC:	DEVELOPMENT COST (DOLLARS)	535303.
ISS:	INVENTORY INTRODUCTION SWITCH	1
ALPHA:	RELIABILITY IMPROVEMENT FACTOR	.10
NLRU:	NUMBER OF LINE REPLACEABLE UNITS	1

		LRU 1
NSRU:	NUMBER OF SRUS	5
NPP:	NUMBER OF PARTS	0
FC:	FRACTIONAL COST	1.000
FM:	FRACTIONAL FAILURE RATE	1.000
KTS:	FRACTION BASE REPARABLE	.90
BRT:	BASE REPAIR TIME (HOURS)	5.0
DRT:	DEPOT REPAIR TIME (HOURS)	5.0
W:	WEIGHT (POUNDS)	113.4
DDP:	DEPOT DEMANDS/HOUR	0.00000
NSPDP:	CURRENT DEPOT SPARES	0

INTERMEDIATE SUPPORT EQUIPMENT: COM RADAR I-LEV S.E.

DEPOT SUPPORT EQUIPMENT: COM RADAR D-LEV S.E.

YEAR	CUMULATIVE OPERATING HOURS		FAILURE RATE (FAILURES/HOURS)	
1	T(1, 2)	5000.	FR(1, 2)	.001850
2	T(2, 2)	5000.	FR(2, 2)	.001850
3	T(3, 2)	5000.	FR(3, 2)	.001850
4	T(4, 2)	5000.	FR(4, 2)	.001850
5	T(5, 2)	5000.	FR(5, 2)	.001850
6	T(6, 2)	5000.	FR(6, 2)	.001850
7	T(7, 2)	5000.	FR(7, 2)	.001850
8	T(8, 2)	5000.	FR(8, 2)	.001850
9	T(9, 2)	5000.	FR(9, 2)	.001850
10	T(10, 2)	5000.	FR(10, 2)	.001850
11	T(11, 2)	5000.	FR(11, 2)	.001850
12	T(12, 2)	5000.	FR(12, 2)	.001850
13	T(13, 2)	5000.	FR(13, 2)	.001850
14	T(14, 2)	5000.	FR(14, 2)	.001850
15	T(15, 2)	5000.	FR(15, 2)	.001850
16	T(16, 2)	5000.	FR(16, 2)	.001850
17	T(17, 2)	5000.	FR(17, 2)	.001850
18	T(18, 2)	5000.	FR(18, 2)	.001850
19	T(19, 2)	5000.	FR(19, 2)	.001850
20	T(20, 2)	5000.	FR(20, 2)	.001850
21	T(21, 2)	5000.	FR(21, 2)	.001850
22	T(22, 2)	5000.	FR(22, 2)	.001850
23	T(23, 2)	5000.	FR(23, 2)	.001850
24	T(24, 2)	5000.	FR(24, 2)	.001850
25	T(25, 2)	5000.	FR(25, 2)	.001850
26	T(26, 2)	5000.	FR(26, 2)	.001850
27	T(27, 2)	5000.	FR(27, 2)	.001850
28	T(28, 2)	5000.	FR(28, 2)	.001850
29	T(29, 2)	5000.	FR(29, 2)	.001850
30	T(30, 2)	5000.	FR(30, 2)	.001850
31	T(31, 2)	5000.	FR(31, 2)	.001850
32	T(32, 2)	5000.	FR(32, 2)	.001850
33	T(33, 2)	5000.	FR(33, 2)	.001850
34	T(34, 2)	5000.	FR(34, 2)	.001850
35	T(35, 2)	5000.	FR(35, 2)	.001850
36	T(36, 2)	5000.	FR(36, 2)	.001850
37	T(37, 2)	5000.	FR(37, 2)	.001850
38	T(38, 2)	5000.	FR(38, 2)	.001850
39	T(39, 2)	5000.	FR(39, 2)	.001850
40	T(40, 2)	5000.	FR(40, 2)	.001850

EQUIPMENT FILE

RECEIVER/EXCITER
EQUIPMENT INPUT DATA

IYA:	INITIAL YEAR AVAILABLE	5
ITYPE:	EQUIPMENT TECHNOLOGY INDEX	2
PC:	PRESENT COST (DOLLARS)	139423.
NQ:	PRESENT PRODUCTION QUANTITY	228
DC:	DEVELOPMENT COST (DOLLARS)	813000.
ISS:	INVENTORY INTRODUCTION SWITCH	1
ALPHA:	RELIABILITY IMPROVEMENT FACTOR	.10
NLRU:	NUMBER OF LINE REPLACEABLE UNITS	1

		LRU 1
NSRU:	NUMBER OF SRUS	8
NPP:	NUMBER OF PARTS	0
FC:	FRACTIONAL COST	1.000
FM:	FRACTIONAL FAILURE RATE	1.000
RTS:	FRACTION BASE REPARABLE	.30
BRT:	BASE REPAIR TIME (HOURS)	5.0
DRT:	DEPOT REPAIR TIME (HOURS)	5.0
W:	WEIGHT (POUNDS)	45.0
DDP:	DEPOT DEMANDS/HOUR	0.00000
NSPDP:	CURRENT DEPOT SPARES	0

INTERMEDIATE SUPPORT EQUIPMENT: COM RADAR I-LEV S.E.

DEPOT SUPPORT EQUIPMENT: COM RADAR D-LEV S.E.

YEAR	CUMULATIVE OPERATING HOURS		FAILURE RATE (FAILURES/HOURS)	
1	T(1, 3)	5000.	FR(1, 3)	.001110
2	T(2, 3)	5000.	FR(2, 3)	.001110
3	T(3, 3)	5000.	FR(3, 3)	.001110
4	T(4, 3)	5000.	FR(4, 3)	.001110
5	T(5, 3)	5000.	FR(5, 3)	.001110
6	T(6, 3)	5000.	FR(6, 3)	.001110
7	T(7, 3)	5000.	FR(7, 3)	.001110
8	T(8, 3)	5000.	FR(8, 3)	.001110
9	T(9, 3)	5000.	FR(9, 3)	.001110
10	T(10, 3)	5000.	FR(10, 3)	.001110
11	T(11, 3)	5000.	FR(11, 3)	.001110
12	T(12, 3)	5000.	FR(12, 3)	.001110
13	T(13, 3)	5000.	FR(13, 3)	.001110
14	T(14, 3)	5000.	FR(14, 3)	.001110
15	T(15, 3)	5000.	FR(15, 3)	.001110
16	T(16, 3)	5000.	FR(16, 3)	.001110
17	T(17, 3)	5000.	FR(17, 3)	.001110
18	T(18, 3)	5000.	FR(18, 3)	.001110
19	T(19, 3)	5000.	FR(19, 3)	.001110
20	T(20, 3)	5000.	FR(20, 3)	.001110
21	T(21, 3)	5000.	FR(21, 3)	.001110
22	T(22, 3)	5000.	FR(22, 3)	.001110
23	T(23, 3)	5000.	FR(23, 3)	.001110
24	T(24, 3)	5000.	FR(24, 3)	.001110
25	T(25, 3)	5000.	FR(25, 3)	.001110
26	T(26, 3)	5000.	FR(26, 3)	.001110
27	T(27, 3)	5000.	FR(27, 3)	.001110
28	T(28, 3)	5000.	FR(28, 3)	.001110
29	T(29, 3)	5000.	FR(29, 3)	.001110
30	T(30, 3)	5000.	FR(30, 3)	.001110
31	T(31, 3)	5000.	FR(31, 3)	.001110
32	T(32, 3)	5000.	FR(32, 3)	.001110
33	T(33, 3)	5000.	FR(33, 3)	.001110
34	T(34, 3)	5000.	FR(34, 3)	.001110
35	T(35, 3)	5000.	FR(35, 3)	.001110
36	T(36, 3)	5000.	FR(36, 3)	.001110
37	T(37, 3)	5000.	FR(37, 3)	.001110
38	T(38, 3)	5000.	FR(38, 3)	.001110
39	T(39, 3)	5000.	FR(39, 3)	.001110
40	T(40, 3)	5000.	FR(40, 3)	.001110

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EQUIPMENT FILE

SIGNAL PROCESSOR
EQUIPMENT INPUT DATA

IYA:    INITIAL YEAR AVAILABLE                          5
ITYPE:  EQUIPMENT TECHNOLOGY INDEX                      2
PC:     PRESENT COST (DOLLARS)                    175418.
NQ:     PRESENT PRODUCTION QUANTITY                   228
DC:     DEVELOPMENT COST (DOLLARS)                951000.
ISS:    INVENTORY INTRODUCTION SWITCH                   1
ALPHA:  RELIABILITY IMPROVEMENT FACTOR                  .10
NLRU:   NUMBER OF LINE REPLACEABLE UNITS                1


                                          LRU  1
NSRU:   NUMBER OF SRUS                       4
NPP:    NUMBER OF PARTS                      0
FC:     FRACTIONAL COST                      1.000
FM:     FRACTIONAL FAILURE RATE              1.000
RTS:    FRACTION BASE REPARABLE               .30
BRT:    BASE REPAIR TIME (HOURS)             5.0
DRT:    DEPOT REPAIR TIME (HOURS)            5.0
W:      WEIGHT (POUNDS)                     54.3
DDP:    DEPOT DEMANDS/HOUR                   0.00000
NSPDP:  CURRENT DEPOT SPARES                 0


INTERMEDIATE SUPPORT EQUIPMENT:      COM RADAR I-LEV S.E.

DEPOT SUPPORT EQUIPMENT:             COM RADAR D-LEV S.E.
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YEAR	CUMULATIVE OPERATING HOURS		FAILURE RATE (FAILURES/HOURS)	
1	T(1, 4)	5000.	FR(1, 4)	.001540
2	T(2, 4)	5000.	FR(2, 4)	.001540
3	T(3, 4)	5000.	FR(3, 4)	.001540
4	T(4, 4)	5000.	FR(4, 4)	.001540
5	T(5, 4)	5000.	FR(5, 4)	.001540
6	T(6, 4)	5000.	FR(6, 4)	.001540
7	T(7, 4)	5000.	FR(7, 4)	.001540
8	T(8, 4)	5000.	FR(8, 4)	.001540
9	T(9, 4)	5000.	FR(9, 4)	.001540
10	T(10, 4)	5000.	FR(10, 4)	.001540
11	T(11, 4)	5000.	FR(11, 4)	.001540
12	T(12, 4)	5000.	FR(12, 4)	.001540
13	T(13, 4)	5000.	FR(13, 4)	.001540
14	T(14, 4)	5000.	FR(14, 4)	.001540
15	T(15, 4)	5000.	FR(15, 4)	.001540
16	T(16, 4)	5000.	FR(16, 4)	.001540
17	T(17, 4)	5000.	FR(17, 4)	.001540
18	T(18, 4)	5000.	FR(18, 4)	.001540
19	T(19, 4)	5000.	FR(19, 4)	.001540
20	T(20, 4)	5000.	FR(20, 4)	.001540
21	T(21, 4)	5000.	FR(21, 4)	.001540
22	T(22, 4)	5000.	FR(22, 4)	.001540
23	T(23, 4)	5000.	FR(23, 4)	.001540
24	T(24, 4)	5000.	FR(24, 4)	.001540
25	T(25, 4)	5000.	FR(25, 4)	.001540
26	T(26, 4)	5000.	FR(26, 4)	.001540
27	T(27, 4)	5000.	FR(27, 4)	.001540
28	T(28, 4)	5000.	FR(28, 4)	.001540
29	T(29, 4)	5000.	FR(29, 4)	.001540
30	T(30, 4)	5000.	FR(30, 4)	.001540
31	T(31, 4)	5000.	FR(31, 4)	.001540
32	T(32, 4)	5000.	FR(32, 4)	.001540
33	T(33, 4)	5000.	FR(33, 4)	.001540
34	T(34, 4)	5000.	FR(34, 4)	.001540
35	T(35, 4)	5000.	FR(35, 4)	.001540
36	T(36, 4)	5000.	FR(36, 4)	.001540
37	T(37, 4)	5000.	FR(37, 4)	.001540
38	T(38, 4)	5000.	FR(38, 4)	.001540
39	T(39, 4)	5000.	FR(39, 4)	.001540
40	T(40, 4)	5000.	FR(40, 4)	.001540

EQUIPMENT FILE

COMPUTER
EQUIPMENT INPUT DATA

IYA:	INITIAL YEAR AVAILABLE	5
ITYPE:	EQUIPMENT TECHNOLOGY INDEX	7
PC:	PRESENT COST (DOLLARS)	121107.
NQ:	PRESENT PRODUCTION QUANTITY	228
DC:	DEVELOPMENT COST (DOLLARS)	592360.
ISS:	INVENTORY INTRODUCTION SWITCH	1
ALPHA:	RELIABILITY IMPROVEMENT FACTOR	.10
NLRU:	NUMBER OF LINE REPLACEABLE UNITS	1

		LRU 1
NSRU:	NUMBER OF SRUS	4
NPP:	NUMBER OF PARTS	0
FC:	FRACTIONAL COST	1.000
FM:	FRACTIONAL FAILURE RATE	1.000
KTS:	FRACTION BASE REPARABLE	.30
BRT:	BASE REPAIR TIME (HOURS)	5.0
DRT:	DEPOT REPAIR TIME (HOURS)	5.0
W:	WEIGHT (POUNDS)	43.7
DDP:	DEPOT DEMANDS/HOUR	0.00000
NSPDP:	CURRENT DEPOT SPARES	0

INTERMEDIATE SUPPORT EQUIPMENT: COM RADAR I-LEV S.E.

DEPOT SUPPORT EQUIPMENT: COM RADAR D-LEV S.E.

YEAR	CUMULATIVE OPERATING HOURS		FAILURE RATE (FAILURES/HOURS)	
1	T(1, 5)	5000.	FR(1, 5)	.001450
2	T(2, 5)	5000.	FR(2, 5)	.001450
3	T(3, 5)	5000.	FR(3, 5)	.001450
4	T(4, 5)	5000.	FR(4, 5)	.001450
5	T(5, 5)	5000.	FR(5, 5)	.001450
6	T(6, 5)	5000.	FR(6, 5)	.001450
7	T(7, 5)	5000.	FR(7, 5)	.001450
8	T(8, 5)	5000.	FR(8, 5)	.001450
9	T(9, 5)	5000.	FR(9, 5)	.001450
10	T(10, 5)	5000.	FR(10, 5)	.001450
11	T(11, 5)	5000.	FR(11, 5)	.001450
12	T(12, 5)	5000.	FR(12, 5)	.001450
13	T(13, 5)	5000.	FR(13, 5)	.001450
14	T(14, 5)	5000.	FR(14, 5)	.001450
15	T(15, 5)	5000.	FR(15, 5)	.001450
16	T(16, 5)	5000.	FR(16, 5)	.001450
17	T(17, 5)	5000.	FR(17, 5)	.001450
18	T(18, 5)	5000.	FR(18, 5)	.001450
19	T(19, 5)	5000.	FR(19, 5)	.001450
20	T(20, 5)	5000.	FR(20, 5)	.001450
21	T(21, 5)	5000.	FR(21, 5)	.001450
22	T(22, 5)	5000.	FR(22, 5)	.001450
23	T(23, 5)	5000.	FR(23, 5)	.001450
24	T(24, 5)	5000.	FR(24, 5)	.001450
25	T(25, 5)	5000.	FR(25, 5)	.001450
26	T(26, 5)	5000.	FR(26, 5)	.001450
27	T(27, 5)	5000.	FR(27, 5)	.001450
28	T(28, 5)	5000.	FR(28, 5)	.001450
29	T(29, 5)	5000.	FR(29, 5)	.001450
30	T(30, 5)	5000.	FR(30, 5)	.001450
31	T(31, 5)	5000.	FR(31, 5)	.001450
32	T(32, 5)	5000.	FR(32, 5)	.001450
33	T(33, 5)	5000.	FR(33, 5)	.001450
34	T(34, 5)	5000.	FR(34, 5)	.001450
35	T(35, 5)	5000.	FR(35, 5)	.001450
36	T(36, 5)	5000.	FR(36, 5)	.001450
37	T(37, 5)	5000.	FR(37, 5)	.001450
38	T(38, 5)	5000.	FR(38, 5)	.001450
39	T(39, 5)	5000.	FR(39, 5)	.001450
40	T(40, 5)	5000.	FR(40, 5)	.001450

EQUIPMENT FILE

PULSE TRANSMITTER
EQUIPMENT INPUT DATA

IYA:	INITIAL YEAR AVAILABLE	5
ITYPE:	EQUIPMENT TECHNOLOGY INDEX	2
PC:	PRESENT COST (DOLLARS)	65350.
NQ:	PRESENT PRODUCTION QUANTITY	228
DC:	DEVELOPMENT COST (DOLLARS)	405000.
ISS:	INVENTORY INTRODUCTION SWITCH	1
ALPHA:	RELIABILITY IMPROVEMENT FACTOR	.10
NLRU:	NUMBER OF LINE REPLACEABLE UNITS	1

		LRU 1
NSRU:	NUMBER OF SRUS	2
NPP:	NUMBER OF PARTS	0
FC:	FRACTIONAL COST	1.000
FM:	FRACTIONAL FAILURE RATE	1.000
RTS:	FRACTION BASE REPARABLE	.90
BRT:	BASE REPAIR TIME (HOURS)	5.0
DRT:	DEPOT REPAIR TIME (HOURS)	5.0
W:	WEIGHT (POUNDS)	50.0
DDP:	DEPOT DEMANDS/HOUR	0.00000
NSPDP:	CURRENT DEPOT SPARES	0

INTERMEDIATE SUPPORT EQUIPMENT: COM RADAR I-LEV S.E.

DEPOT SUPPORT EQUIPMENT: COM RADAR D-LEV S.E.

YEAR	CUMULATIVE OPERATING HOURS		FAILURE RATE (FAILURES/HOURS)	
1	T(1, 6)	5000.	FR(1, 5)	.001240
2	T(2, 6)	5000.	FR(2, 5)	.001240
3	T(3, 6)	5000.	FR(3, 5)	.001240
4	T(4, 6)	5000.	FR(4, 5)	.001240
5	T(5, 6)	5000.	FR(5, 5)	.001240
6	T(6, 6)	5000.	FR(6, 5)	.001240
7	T(7, 6)	5000.	FR(7, 5)	.001240
8	T(8, 6)	5000.	FR(8, 5)	.001240
9	T(9, 6)	5000.	FR(9, 5)	.001240
10	T(10, 6)	5000.	FR(10, 5)	.001240
11	T(11, 6)	5000.	FR(11, 5)	.001240
12	T(12, 6)	5000.	FR(12, 5)	.001240
13	T(13, 6)	5000.	FR(13, 5)	.001240
14	T(14, 6)	5000.	FR(14, 5)	.001240
15	T(15, 6)	5000.	FR(15, 5)	.001240
16	T(16, 6)	5000.	FR(16, 5)	.001240
17	T(17, 6)	5000.	FR(17, 5)	.001240
18	T(18, 6)	5000.	FR(18, 5)	.001240
19	T(19, 6)	5000.	FR(19, 5)	.001240
20	T(20, 6)	5000.	FR(20, 5)	.001240
21	T(21, 6)	5000.	FR(21, 5)	.001240
22	T(22, 6)	5000.	FR(22, 5)	.001240
23	T(23, 6)	5000.	FR(23, 5)	.001240
24	T(24, 6)	5000.	FR(24, 5)	.001240
25	T(25, 6)	5000.	FR(25, 5)	.001240
26	T(26, 6)	5000.	FR(26, 5)	.001240
27	T(27, 6)	5000.	FR(27, 5)	.001240
28	T(28, 6)	5000.	FR(28, 5)	.001240
29	T(29, 6)	5000.	FR(29, 5)	.001240
30	T(30, 6)	5000.	FR(30, 5)	.001240
31	T(31, 6)	5000.	FR(31, 5)	.001240
32	T(32, 6)	5000.	FR(32, 5)	.001240
33	T(33, 6)	5000.	FR(33, 5)	.001240
34	T(34, 6)	5000.	FR(34, 5)	.001240
35	T(35, 6)	5000.	FR(35, 5)	.001240
36	T(36, 6)	5000.	FR(36, 5)	.001240
37	T(37, 6)	5000.	FR(37, 5)	.001240
38	T(38, 6)	5000.	FR(38, 5)	.001240
39	T(39, 6)	5000.	FR(39, 5)	.001240
40	T(40, 6)	5000.	FR(40, 5)	.001240

EQUIPMENT FILE

C D(F-106)
EQUIPMENT INPUT DATA

IYA:	INITIAL YEAR AVAILABLE	5
ITYPE:	EQUIPMENT TECHNOLOGY INDEX	2
PC:	PRESENT COST (DOLLARS)	60542.
NQ:	PRESENT PRODUCTION QUANTITY	269
DC:	DEVELOPMENT COST (DOLLARS)	1313000.
ISS:	INVENTORY INTRODUCTION SWITCH	1
ALPHA:	RELIABILITY IMPROVEMENT FACTOR	.10
NLRU:	NUMBER OF LINE REPLACEABLE UNITS	1

		LRU 1
NSRU:	NUMBER OF SRUS	1
NPP:	NUMBER OF PARTS	0
FC:	FRACTIONAL COST	1.000
FM:	FRACTIONAL FAILURE RATE	1.000
RTS:	FRACTION BASE REPARABLE	.90
BRT:	BASE REPAIR TIME (HOURS)	5.0
DRT:	DEPOT REPAIR TIME (HOURS)	5.0
W:	WEIGHT (POUNDS)	30.0
DDP:	DEPOT DEMANDS/HOUR	0.00000
NSPUP:	CURRENT DEPOT SPARES	0

INTERMEDIATE SUPPORT EQUIPMENT: COM RADAR I-LEV S.E.

DEPOT SUPPORT EQUIPMENT: COM RADAR D-LEV S.E.

YEAR	CUMULATIVE OPERATING HOURS		FAILURE RATE (FAILURES/HOURS)	
1	T(1, 7)	5000.	FR(1, 7)	.001310
2	T(2, 7)	5000.	FR(2, 7)	.001310
3	T(3, 7)	5000.	FR(3, 7)	.001310
4	T(4, 7)	5000.	FR(4, 7)	.001310
5	T(5, 7)	5000.	FR(5, 7)	.001310
6	T(6, 7)	5000.	FR(6, 7)	.001310
7	T(7, 7)	5000.	FR(7, 7)	.001310
8	T(8, 7)	5000.	FR(8, 7)	.001310
9	T(9, 7)	5000.	FR(9, 7)	.001310
10	T(10, 7)	5000.	FR(10, 7)	.001310
11	T(11, 7)	5000.	FR(11, 7)	.001310
12	T(12, 7)	5000.	FR(12, 7)	.001310
13	T(13, 7)	5000.	FR(13, 7)	.001310
14	T(14, 7)	5000.	FR(14, 7)	.001310
15	T(15, 7)	5000.	FR(15, 7)	.001310
16	T(16, 7)	5000.	FR(16, 7)	.001310
17	T(17, 7)	5000.	FR(17, 7)	.001310
18	T(18, 7)	5000.	FR(18, 7)	.001310
19	T(19, 7)	5000.	FR(19, 7)	.001310
20	T(20, 7)	5000.	FR(20, 7)	.001310
21	T(21, 7)	5000.	FR(21, 7)	.001310
22	T(22, 7)	5000.	FR(22, 7)	.001310
23	T(23, 7)	5000.	FR(23, 7)	.001310
24	T(24, 7)	5000.	FR(24, 7)	.001310
25	T(25, 7)	5000.	FR(25, 7)	.001310
26	T(26, 7)	5000.	FR(26, 7)	.001310
27	T(27, 7)	5000.	FR(27, 7)	.001310
28	T(28, 7)	5000.	FR(28, 7)	.001310
29	T(29, 7)	5000.	FR(29, 7)	.001310
30	T(30, 7)	5000.	FR(30, 7)	.001310
31	T(31, 7)	5000.	FR(31, 7)	.001310
32	T(32, 7)	5000.	FR(32, 7)	.001310
33	T(33, 7)	5000.	FR(33, 7)	.001310
34	T(34, 7)	5000.	FR(34, 7)	.001310
35	T(35, 7)	5000.	FR(35, 7)	.001310
36	T(36, 7)	5000.	FR(36, 7)	.001310
37	T(37, 7)	5000.	FR(37, 7)	.001310
38	T(38, 7)	5000.	FR(38, 7)	.001310
39	T(39, 7)	5000.	FR(39, 7)	.001310
40	T(40, 7)	5000.	FR(40, 7)	.001310

EQUIPMENT FILE

C W ILLUMINATOR F-4G
EQUIPMENT INPUT DATA

IYA:	INITIAL YEAR AVAILABLE	5
ITYPE:	EQUIPMENT TECHNOLOGY INDEX	2
PC:	PRESENT COST (DOLLARS)	69000.
NQ:	PRESENT PRODUCTION QUANTITY	595
DC:	DEVELOPMENT COST (DOLLARS)	4900000.
ISS:	INVENTORY INTRODUCTION SWITCH	1
ALPHA:	RELIABILITY IMPROVEMENT FACTOR	.10
NLRU:	NUMBER OF LINE REPLACEABLE UNITS	1

		LRU 1
NSRU:	NUMBER OF SRUS	3
NPP:	NUMBER OF PARTS	0
FC:	FRACTIONAL COST	1.000
FM:	FRACTIONAL FAILURE RATE	1.000
RTS:	FRACTION BASE REPARABLE	.30
BRT:	BASE REPAIR TIME (HOURS)	5.0
DRT:	DEPOT REPAIR TIME (HOURS)	5.0
W:	WEIGHT (POUNDS)	60.0
DDP:	DEPOT DEMANDS/HOUR	0.00000
NSPDP:	CURRENT DEPOT SPARES	0

INTERMEDIATE SUPPORT EQUIPMENT: COM RADAR I-LEV S.E.

DEPOT SUPPORT EQUIPMENT: COM RADAR D-LEV S.E.

YEAR	CUMULATIVE OPERATING HOURS		FAILURE RATE (FAILURES/HOURS)	
1	T(1, 8)	5000.	FR(1, 8)	.013330
2	T(2, 8)	5000.	FR(2, 8)	.013330
3	T(3, 8)	5000.	FR(3, 8)	.013330
4	T(4, 8)	5000.	FR(4, 8)	.013330
5	T(5, 8)	5000.	FR(5, 8)	.013330
6	T(6, 8)	5000.	FR(6, 8)	.013330
7	T(7, 8)	5000.	FR(7, 8)	.013330
8	T(8, 8)	5000.	FR(8, 8)	.013330
9	T(9, 8)	5000.	FR(9, 8)	.013330
10	T(10, 8)	5000.	FR(10, 8)	.013330
11	T(11, 8)	5000.	FR(11, 8)	.013330
12	T(12, 8)	5000.	FR(12, 8)	.013330
13	T(13, 8)	5000.	FR(13, 8)	.013330
14	T(14, 8)	5000.	FR(14, 8)	.013330
15	T(15, 8)	5000.	FR(15, 8)	.013330
16	T(16, 8)	5000.	FR(16, 8)	.013330
17	T(17, 8)	5000.	FR(17, 8)	.013330
18	T(18, 8)	5000.	FR(18, 8)	.013330
19	T(19, 8)	5000.	FR(19, 8)	.013330
20	T(20, 8)	5000.	FR(20, 8)	.013330
21	T(21, 8)	5000.	FR(21, 8)	.013330
22	T(22, 8)	5000.	FR(22, 8)	.013330
23	T(23, 8)	5000.	FR(23, 8)	.013330
24	T(24, 8)	5000.	FR(24, 8)	.013330
25	T(25, 8)	5000.	FR(25, 8)	.013330
26	T(26, 8)	5000.	FR(26, 8)	.013330
27	T(27, 8)	5000.	FR(27, 8)	.013330
28	T(28, 8)	5000.	FR(28, 8)	.013330
29	T(29, 8)	5000.	FR(29, 8)	.013330
30	T(30, 8)	5000.	FR(30, 8)	.013330
31	T(31, 8)	5000.	FR(31, 8)	.013330
32	T(32, 8)	5000.	FR(32, 8)	.013330
33	T(33, 8)	5000.	FR(33, 8)	.013330
34	T(34, 8)	5000.	FR(34, 8)	.013330
35	T(35, 8)	5000.	FR(35, 8)	.013330
36	T(36, 8)	5000.	FR(36, 8)	.013330
37	T(37, 8)	5000.	FR(37, 8)	.013330
38	T(38, 8)	5000.	FR(38, 8)	.013330
39	T(39, 8)	5000.	FR(39, 8)	.013330
40	T(40, 8)	5000.	FR(40, 8)	.013330

```
                 EQUIPMENT FILE

                  TFR F-111
               EQUIPMENT INPUT DATA


IYA:    INITIAL YEAR AVAILABLE                          5
ITYPE:  EQUIPMENT TECHNOLOGY INDEX                      2
PC:     PRESENT COST (DOLLARS)                     185000.
NQ:     PRESENT PRODUCTION QUANTITY                   437
DC:     DEVELOPMENT COST (DOLLARS)               12000000.
ISS:    INVENTORY INTRODUCTION SWITCH                   1
ALPHA:  RELIABILITY IMPROVEMENT FACTOR                   .10
NLRU:   NUMBER OF LINE REPLACEABLE UNITS                1


                                       LRU  1
NSRU:   NUMBER OF SRUS                   3
NPP:    NUMBER OF PARTS                  0
FC:     FRACTIONAL COST                  1.000
FM:     FRACTIONAL FAILURE RATE          1.000
RTS:    FRACTION BASE REPARABLE           .30
BRT:    BASE REPAIR TIME (HOURS)         5.0
DRT:    DEPOT REPAIR TIME (HOURS)        5.0
W:      WEIGHT (POUNDS)                145.0
DDP:    DEPOT DEMANDS/HOUR               0.00000
NSPLP:  CURRENT DEPOT SPARES             0


INTERMEDIATE SUPPORT EQUIPMENT:      COM RADAR I-LEV S.E.


DEPOT SUPPORT EQUIPMENT:             COM RADAR D-LEV S.E.
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YEAR	CUMULATIVE OPERATING HOURS		FAILURE RATE (FAILURES/HOURS)	
1	T(1, 9)	5000.	FR(1, 9)	.001000
2	T(2, 9)	5000.	FR(2, 9)	.001000
3	T(3, 9)	5000.	FR(3, 9)	.001000
4	T(4, 9)	5000.	FR(4, 9)	.001000
5	T(5, 9)	5000.	FR(5, 9)	.001000
6	T(6, 9)	5000.	FR(6, 9)	.001000
7	T(7, 9)	5000.	FR(7, 9)	.001000
8	T(8, 9)	5000.	FR(8, 9)	.001000
9	T(9, 9)	5000.	FR(9, 9)	.001000
10	T(10, 9)	5000.	FR(10, 9)	.001000
11	T(11, 9)	5000.	FR(11, 9)	.001000
12	T(12, 9)	5000.	FR(12, 9)	.001000
13	T(13, 9)	5000.	FR(13, 9)	.001000
14	T(14, 9)	5000.	FR(14, 9)	.001000
15	T(15, 9)	5000.	FR(15, 9)	.001000
16	T(16, 9)	5000.	FR(16, 9)	.001000
17	T(17, 9)	5000.	FR(17, 9)	.001000
18	T(18, 9)	5000.	FR(18, 9)	.001000
19	T(19, 9)	5000.	FR(19, 9)	.001000
20	T(20, 9)	5000.	FR(20, 9)	.001000
21	T(21, 9)	5000.	FR(21, 9)	.001000
22	T(22, 9)	5000.	FR(22, 9)	.001000
23	T(23, 9)	5000.	FR(23, 9)	.001000
24	T(24, 9)	5000.	FR(24, 9)	.001000
25	T(25, 9)	5000.	FR(25, 9)	.001000
26	T(26, 9)	5000.	FR(26, 9)	.001000
27	T(27, 9)	5000.	FR(27, 9)	.001000
28	T(28, 9)	5000.	FR(28, 9)	.001000
29	T(29, 9)	5000.	FR(29, 9)	.001000
30	T(30, 9)	5000.	FR(30, 9)	.001000
31	T(31, 9)	5000.	FR(31, 9)	.001000
32	T(32, 9)	5000.	FR(32, 9)	.001000
33	T(33, 9)	5000.	FR(33, 9)	.001000
34	T(34, 9)	5000.	FR(34, 9)	.001000
35	T(35, 9)	5000.	FR(35, 9)	.001000
36	T(36, 9)	5000.	FR(36, 9)	.001000
37	T(37, 9)	5000.	FR(37, 9)	.001000
38	T(38, 9)	5000.	FR(38, 9)	.001000
39	T(39, 9)	5000.	FR(39, 9)	.001000
40	T(40, 9)	5000.	FR(40, 9)	.001000

EQUIPMENT FILE

C D(B-52G,H)
EQUIPMENT INPUT DATA

IYA:	INITIAL YEAR AVAILABLE	5
ITYPE:	EQUIPMENT TECHNOLOGY INDEX	2
PC:	PRESENT COST (DOLLARS)	63542.
NQ:	PRESENT PRODUCTION QUANTITY	259
DC:	DEVELOPMENT COST (DOLLARS)	1313000.
ISS:	INVENTORY INTRODUCTION SWITCH	1
ALPHA:	RELIABILITY IMPROVEMENT FACTOR	.10
NLRU:	NUMBER OF LINE REPLACEABLE UNITS	1

		LRU 1
NSRU:	NUMBER OF SRUS	1
NPP:	NUMBER OF PARTS	0
FC:	FRACTIONAL COST	1.000
FM:	FRACTIONAL FAILURE RATE	1.000
RTS:	FRACTION BASE REPARABLE	.93
BRT:	BASE REPAIR TIME (HOURS)	5.0
DRT:	DEPOT REPAIR TIME (HOURS)	5.0
W:	WEIGHT (POUNDS)	30.0
DDP:	DEPOT DEMANDS/HOUR	0.00000
NSPUP:	CURRENT DEPOT SPARES	0

INTERMEDIATE SUPPORT EQUIPMENT: COM RADAR I-LEV S.E.

DEPOT SUPPORT EQUIPMENT: COM RADAR D-LEV S.E.

YEAR	CUMULATIVE OPERATING HOURS		FAILURE RATE (FAILURES/HOURS)	
1	T(1,10)	5000.	FR(1,10)	.001310
2	T(2,10)	5000.	FR(2,10)	.001310
3	T(3,10)	5000.	FR(3,10)	.001310
4	T(4,10)	5000.	FR(4,10)	.001310
5	T(5,10)	5000.	FR(5,10)	.001310
6	T(6,10)	5000.	FR(6,10)	.001310
7	T(7,10)	5000.	FR(7,10)	.001310
8	T(8,10)	5000.	FR(8,10)	.001310
9	T(9,10)	5000.	FR(9,10)	.001310
10	T(10,10)	5000.	FR(10,10)	.001310
11	T(11,10)	5000.	FR(11,10)	.001310
12	T(12,10)	5000.	FR(12,10)	.001310
13	T(13,10)	5000.	FR(13,10)	.001310
14	T(14,10)	5000.	FR(14,10)	.001310
15	T(15,10)	5000.	FR(15,10)	.001310
16	T(16,10)	5000.	FR(16,10)	.001310
17	T(17,10)	5000.	FR(17,10)	.001310
18	T(18,10)	5000.	FR(18,10)	.001310
19	T(19,10)	5000.	FR(19,10)	.001310
20	T(20,10)	5000.	FR(20,10)	.001310
21	T(21,10)	5000.	FR(21,10)	.001310
22	T(22,10)	5000.	FR(22,10)	.001310
23	T(23,10)	5000.	FR(23,10)	.001310
24	T(24,10)	5000.	FR(24,10)	.001310
25	T(25,10)	5000.	FR(25,10)	.001310
26	T(26,10)	5000.	FR(26,10)	.001310
27	T(27,10)	5000.	FR(27,10)	.001310
28	T(28,10)	5000.	FR(28,10)	.001310
29	T(29,10)	5000.	FR(29,10)	.001310
30	T(30,10)	5000.	FR(30,10)	.001310
31	T(31,10)	5000.	FR(31,10)	.001310
32	T(32,10)	5000.	FR(32,10)	.001310
33	T(33,10)	5000.	FR(33,10)	.001310
34	T(34,10)	5000.	FR(34,10)	.001310
35	T(35,10)	5000.	FR(35,10)	.001310
36	T(36,10)	5000.	FR(36,10)	.001310
37	T(37,10)	5000.	FR(37,10)	.001310
38	T(38,10)	5000.	FR(38,10)	.001310
39	T(39,10)	5000.	FR(39,10)	.001310
40	T(40,10)	5000.	FR(40,10)	.001310

COM RADAR I-LEV S.E.

SUPPORT EQUIPMENT INPUT DATA

SED:	DEVELOPMENT COST (DOLLARS)	1300000.
ISE:	INVENTORY INTRODUCTION SWITCH	1
PSE:	PRESENT COST (DOLLARS)	1700000.
NQSE:	PRESENT PRODUCTION QUANTITY	1
USET:	CURRENT USAGE RATE (HOURS/MONTH)	0.
NDEP:	CURRENT DEPOT QUANTITY	0
NBSE:	CURRENT BASE QUANTITY	0

COM RADAR D-LEV S.E.

SUPPORT EQUIPMENT INPUT DATA

SED:	DEVELOPMENT COST (DOLLARS)	1000000.
ISE:	INVENTORY INTRODUCTION SWITCH	1
PSE:	PRESENT COST (DOLLARS)	2280000.
NQSE:	PRESENT PRODUCTION QUANTITY	1
USET:	CURRENT USAGE RATE (HOURS/MONTH)	0.
NDEP:	CURRENT DEPOT QUANTITY	0
NBSE:	CURRENT BASE QUANTITY	0

WARNING. MULTIPLE SUBSYSTEM OPTIONS
INCONSISTANT WITH MODE 2 OPERATION.
GLOBAL LIFE-CYCLE COST OUTPUT WILL
OVERESTIMATED

APPENDIX C

This appendix contains the STEP LCC analysis output. The analysis in this appendix was run on the PRICE MTBF figures, with INPOUT=1 and ISKIP=0.

INPOUT=1 provides for input listing in the STEP output (Appendix B).

ISKIP=0 provides for standardization benefits to be accounted for in the STEP model execution.

In the MODE 2 analysis, in the output after each aircraft iteration, a warning sign is printed. The warning states:

> "Warning. Multiple subsystem options inconsistent with MODE 2 operation. Global life cycle cost output will be overestimated."

This warning message should be ignored, as this is due to an error in the program code. Global life cycle costs will not be overestimated. This will be corrected in an updated version of the STEP model.

APPLICATIONS DATA

F-105 AIRCRAFT
NAVIGATION SUITE ALTERNATIVES

SUBSYSTEM 1

NONREDUNDANT OPTION 1
OPTIONS: ANTENNA

SUBSYSTEM 2

NONREDUNDANT OPTION 1
OPTIONS: TRANSMITTER

SUBSYSTEM 3

NONREDUNDANT OPTION 1
OPTIONS: RECEIVER/EXCITER

SUBSYSTEM 4

NONREDUNDANT OPTION 1
OPTIONS: SIGNAL PROCESSOR

SUBSYSTEM 5

NONREDUNDANT OPTION 1
OPTIONS: COMPUTER

SUBSYSTEM 6

NONREDUNDANT OPTION 1
OPTIONS: PULSE TRANSMITTER

SUBSYSTEM 7

NONREDUNDANT OPTION 1
OPTIONS: C O(F-105)

MISSION 1

EQUIPMENT DUTY CYCLE MATRIX

MISSION PHASE

SUBSYSTEM	1
1	1.800
2	1.800
3	1.800
4	1.800
5	1.800
6	1.800
7	1.800

FAILURE IMPACT PROBABILITY MATRIX

MISSION PHASE

SUBSYSTEM	1
1	0.00
2	0.00
3	0.00
4	0.00
5	0.00
6	0.00
7	0.00

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM:	ANTENNA	QUANTITY/AIRCRAFT: 1
HARDWARE DEVELOPMENT COST	=	300000.
S.E. DEVELOPMENT COST	=	14000000.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	13535562.
S.E. ACQUISITION COST	=	26983000.
NONHARDWARE ACQUISITION COST	=	2212565.
INITIAL SPARES COST	=	56888.
I-LEVEL MAINTENANCE COST	=	34538.
D-LEVEL MAINTENANCE COST	=	142409.
S.E. MAINTENANCE COST	=	3912000.
SHIPPING COST	=	10345.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	60453209.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM:	TRANSMITTER	QUANTITY/AIRCRAFT: 1
HARDWARE DEVELOPMENT COST	=	536000.
S.E. DEVELOPMENT COST	=	14000000.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	21182757.
S.E. ACQUISITION COST	=	28360000.
NONHARDWARE ACQUISITION COST	=	3447366.
INITIAL SPARES COST	=	2119309.
I-LEVEL MAINTENANCE COST	=	593110.
D-LEVEL MAINTENANCE COST	=	1348322.
S.E. MAINTENANCE COST	=	4254000.
SHIPPING COST	=	95509.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	76335756.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: RECEIVER/EXCITER		QUANTITY/AIRCRAFT: 1
HARDWARE DEVELOPMENT COST	=	619000.
S.E. DEVELOPMENT COST	=	14000000.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	29983613.
S.E. ACQUISITION COST	=	28350000.
NONHARDWARE ACQUISITION COST	=	4879805.
INITIAL SPARES COST	=	2375818.
I-LEVEL MAINTENANCE COST	=	355855.
D-LEVEL MAINTENANCE COST	=	838993.
S.E. MAINTENANCE COST	=	4254000.
SHIPPING COST	=	22764.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	85860860.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: SIGNAL PROCESSOR		QUANTITY/AIRCRAFT: 1
HARDWARE DEVELOPMENT COST	=	851000.
S.E. DEVELOPMENT COST	=	14000000.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	37724518.
S.E. ACQUISITION COST	=	28350000.
NONHARDWARE ACQUISITION COST	=	6139530.
INITIAL SPARES COST	=	3304131.
I-LEVEL MAINTENANCE COST	=	493724.
D-LEVEL MAINTENANCE COST	=	1122387.
S.E. MAINTENANCE COST	=	4254000.
SHIPPING COST	=	38116.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	96287550.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM:	COMPUTER	QUANTITY/AIRCRAFT: 1
HARDWARE DEVELOPMENT COST	=	592000.
S.E. DEVELOPMENT COST	=	14000000.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	26044565.
S.E. ACQUISITION COST	=	28360000.
NONHARDWARE ACQUISITION COST	=	4238745.
INITIAL SPARES COST	=	2172313.
I-LEVEL MAINTENANCE COST	=	468075.
D-LEVEL MAINTENANCE COST	=	1054081.
S.E. MAINTENANCE COST	=	4254000.
SHIPPING COST	=	29077.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	61223558.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM:	PULSE TRANSMITTER	QUANTITY/AIRCRAFT: 1
HARDWARE DEVELOPMENT COST	=	405000.
S.E. DEVELOPMENT COST	=	14000000.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	14053844.
S.E. ACQUISITION COST	=	28360000.
NONHARDWARE ACQUISITION COST	=	2287250.
INITIAL SPARES COST	=	1114056.
I-LEVEL MAINTENANCE COST	=	397544.
D-LEVEL MAINTENANCE COST	=	913740.
S.E. MAINTENANCE COST	=	4254000.
SHIPPING COST	=	28255.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	65833591.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: G D(F-106) QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	1313000.
S.E. DEVELOPMENT COST	=	14000300.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	13115140.
S.E. ACQUISITION COST	=	2835000.
NONHARDWARE ACQUISITION COST	=	2118970.
INITIAL SPARES COST	=	1099901.
I-LEVEL MAINTENANCE COST	=	419985.
D-LEVEL MAINTENANCE COST	=	954758.
S.E. MAINTENANCE COST	=	4254000.
SHIPPING COST	=	17315.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	55535553.

BASELINE CONFIGURATION

AIRCRAFT SUBSYSTEM	EQUIPMENT	
1	ANTENNA	(NONREDUNDANT)
2	TRANSMITTER	(NONREDUNDANT)
3	RECEIVER/EXCITER	(NONREDUNDANT)
4	SIGNAL PROCESSOR	(NONREDUNDANT)
5	COMPUTER	(NONREDUNDANT)
6	PULSE TRANSMITTER	(NONREDUNDANT)
7	C D(F-106)	(NONREDUNDANT)

MISSION SUCCESS PROBABILITIES

MISSION	BASELINE MCSP
1	1.00000

BASELINE LIFE CYCLE COST = $ 531318211.

GLOBAL LIFE-CYCLE COSTS
ALL SUBSYSTEMS CUMULATIVE THROUGH CURRENT AIRCRAFT

HARDWARE DEVELOPMENT COST	=	4925100.
S.E. DEVELOPMENT COST	=	98000000.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	155599402.
S.E. ACQUISITION COST	=	196240000.
NONHARDWARE ACQUISITION COST	=	25324425.
INITIAL SPARES COST	=	12243975.
I-LEVEL MAINTENANCE COST	=	2812945.
D-LEVEL MAINTENANCE COST	=	5394590.
S.E. MAINTENANCE COST	=	29436000.
SHIPPING COST	=	241772.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL GLOBAL CYCLE COST	=	531318211.

WARNING. MULTIPLE SUBSYSTEM OPTIONS
INCONSISTANT WITH MODE 2 OPERATION.
GLOBAL LIFE-CYCLE COST OUTPUT WILL
OVERESTIMATED

APPLICATIONS DATA

F-15 AIRCRAFT
NAVIGATION SUITE ALTERNATIVES

SUBSYSTEM 1

NONREDUNDANT OPTIONS:	OPTION 1 ANTENNA

SUBSYSTEM 2

NONREDUNDANT OPTIONS:	OPTION 1 TRANSMITTER

SUBSYSTEM 3

NONREDUNDANT OPTIONS:	OPTION 1 RECEIVER/EXCITER

SUBSYSTEM 4

NONREDUNDANT OPTIONS:	OPTION 1 SIGNAL PROCESSOR

SUBSYSTEM 5

NONREDUNDANT OPTIONS:	OPTION 1 COMPUTER

MISSION 1

EQUIPMENT DUTY CYCLE MATRIX

MISSION PHASE

SUBSYSTEM	1
1	1.800
2	1.800
3	1.000
4	1.800
5	1.800

FAILURE IMPACT PROBABILITY MATRIX

MISSION PHASE

SUBSYSTEM	1
1	0.00
2	0.00
3	0.00
4	0.00
5	0.00

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM:	ANTENNA	QUANTITY/AIRCRAFT: 1
HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	386[illegible]7958.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	147982.
I-LEVEL MAINTENANCE COST	=	105393.
D-LEVEL MAINTENANCE COST	=	238308.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	15706.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	39[illegible]17.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM:	TRANSMITTER	QUANTITY/AIRCRAFT: 1
HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	50213966.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	16[illegible]9522.
I-LEVEL MAINTENANCE COST	=	735445.
D-LEVEL MAINTENANCE COST	=	1674169.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	139563.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	5433356[illegible].

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: RECEIVER/EXCITER QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	85233896.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	1520297.
I-LEVEL MAINTENANCE COST	=	441958.
D-LEVEL MAINTENANCE COST	=	1074501.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	37991.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	88238554.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: SIGNAL PROCESSOR QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	107238932.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	2459527.
I-LEVEL MAINTENANCE COST	=	613942.
D-LEVEL MAINTENANCE COST	=	1393532.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	33502.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	111757535.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: COMPUTER QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	74035719.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	1632504.
I-LEVEL MAINTENANCE COST	=	581195.
D-LEVEL MAINTENANCE COST	=	1321235.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	48527.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	77590181.

BASELINE CONFIGURATION

AIRCRAFT SUBSYSTEM	EQUIPMENT	
1	ANTENNA	(NONREDUNDANT)
2	TRANSMITTER	(NONREDUNDANT)
3	RECEIVER/EXCITER	(NONREDUNDANT)
4	SIGNAL PROCESSOR	(NONREDUNDANT)
5	COMPUTER	(NONREDUNDANT)

MISSION SUCCESS PROBABILITIES

MISSION	BASELINE MCSP
1	1.00000

BASELINE LIFE CYCLE COST = $ 391146553.

GLOBAL LIFE-CYCLE COSTS
ALL SUBSYSTEMS CUMULATIVE THROUGH CURRENT AIRCRAFT

HARDWARE DEVELOPMENT COST	=	4925000.
S.E. DEVELOPMENT COST	=	98000000.
SOFTWARE DEVELOPMENT COST	=	0
HARDWARE ACQUISITION COST	=	521676583.
S.E. ACQUISITION COST	=	135246000.
NONHARDWARE ACQUISITION COST	=	25324425.
INITIAL SPARES COST	=	13582509.
I-LEVEL MAINTENANCE COST	=	5290589.
D-LEVEL MAINTENANCE COST	=	12027137.
S.E. MAINTENANCE COST	=	23436000.
SHIPPING COST	=	558221.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL GLOBAL CYCLE COST	=	912454764.

WARNING. MULTIPLE SUBSYSTEM OPTIONS
INCONSISTANT WITH MODE 2 OPERATION.
GLOBAL LIFE-CYCLE COST OUTPUT WILL
OVERESTIMATED

APPLICATIONS DATA

B-52G AIRCRAFT
NAVIGATION SUITE ALTERNATIVES

SUBSYSTEM 1

REDUNDANT OPTIONS: OPTION 1
ANTENNA
ANTENNA

SUBSYSTEM 2

REDUNDANT OPTIONS: OPTION 1
TRANSMITTER
TRANSMITTER

SUBSYSTEM 3

REDUNDANT OPTIONS: OPTION 1
RECEIVER/EXCITER
RECEIVER/EXCITER

SUBSYSTEM 4

REDUNDANT OPTIONS: OPTION 1
SIGNAL PROCESSOR
SIGNAL PROCESSOR

SUBSYSTEM 5

REDUNDANT OPTIONS: OPTION 1
COMPUTER
COMPUTER

SUBSYSTEM 6

NONREDUNDANT OPTIONS: OPTION 1
C U(B-52G,H)

MISSION 1

EQUIPMENT DUTY CYCLE MATRIX

MISSION PHASE

SUBSYSTEM	1
1	*****
2	*****
3	*****
4	*****
5	*****
6	*****

FAILURE IMPACT PROBABILITY MATRIX

MISSION PHASE

SUBSYSTEM	1
1	0.00
2	0.00
3	0.00
4	0.00
5	0.00
6	0.00

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: ANTENNA QUANTITY/AIRCRAFT: 2

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	16574819.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	48155.
I-LEVEL MAINTENANCE COST	=	50590.
O-LEVEL MAINTENANCE COST	=	137739.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	7192.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	16825494.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: TRANSMITTER QUANTITY/AIRCRAFT: 2

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	25823777.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0
INITIAL SPARES COST	=	1349253.
I-LEVEL MAINTENANCE COST	=	424585.
O-LEVEL MAINTENANCE COST	=	955214.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	53443.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	28651274.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: RECEIVER/EXCITER QUANTITY/AIRCRAFT: 2

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	36554356.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	1167597.
I-LEVEL MAINTENANCE COST	=	254752.
D-LEVEL MAINTENANCE COST	=	579129.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	16296.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	38571832.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: SIGNAL PROCESSOR QUANTITY/AIRCRAFT: 2

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	45991262.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	1735961.
I-LEVEL MAINTENANCE COST	=	353439.
D-LEVEL MAINTENANCE COST	=	813476.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	27281.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	48911420.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: COMPUTER QUANTITY/AIRCRAFT: 2

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	31731951.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	1014210.
I-LEVEL MAINTENANCE COST	=	335979.
D-LEVEL MAINTENANCE COST	=	751737.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	29913.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	33883792.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: C D(B-52G,H) QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	1313000.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	9935350.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	2118970.
INITIAL SPARES COST	=	572557.
I-LEVEL MAINTENANCE COST	=	233358.
D-LEVEL MAINTENANCE COST	=	536558.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	11343.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	15[illegible]32146.

BASELINE CONFIGURATION

AIRCRAFT SUBSYSTEM	EQUIPMENT	
1	ANTENNA	(REDUNDANT UNIT 1)
	ANTENNA	(REDUNDANT UNIT 2)
2	TRANSMITTER	(REDUNDANT UNIT 1)
	TRANSMITTER	(REDUNDANT UNIT 2)
3	RECEIVER/EXCITER	(REDUNDANT UNIT 1)
	RECEIVER/EXCITER	(REDUNDANT UNIT 2)
4	SIGNAL PROCESSOR	(REDUNDANT UNIT 1)
	SIGNAL PROCESSOR	(REDUNDANT UNIT 2)
5	COMPUTER	(REDUNDANT UNIT 1)
	COMPUTER	(REDUNDANT UNIT 2)
6	C D(B-52G,H)	(NONREDUNDANT)

MISSION SUCCESS PROBABILITIES

MISSION	BASELINE MCSP
1	1.00000

BASELINE LIFE CYCLE COST = $ 181858957.

GLOBAL LIFE-CYCLE COSTS
ALL SUBSYSTEMS CUMULATIVE THROUGH CURRENT AIRCRAFT

HARDWARE DEVELOPMENT COST	=	5238000.
S.E. DEVELOPMENT COST	=	99000000.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	637755412
S.E. ACQUISITION COST	=	195240000.
NONHARDWARE ACQUISITION COST	=	27443395.
INITIAL SPARES COST	=	25578542
I-LEVEL MAINTENANCE COST	=	5939092.
D-LEVEL MAINTENANCE COST	=	15911093.
S.E. MAINTENANCE COST	=	23435 09
SHIPPING COST	=	720191
SOFTWARE MAINTENANCE COST	=	0.
TOTAL GLOBAL CYCLE COST	=	193+323,21.

WARNING. MULTIPLE SUBSYSTEM OPTIONS
INCONSISTANT WITH MODE 2 OPERATION.
GLOBAL LIFE-CYCLE COST OUTPUT WILL
OVERESTIMATED

APPLICATIONS DATA

B-52H AIRCRAFT
NAVIGATION SUITE ALTERNATIVES

SUBSYSTEM 1

REDUNDANT OPTIONS:	OPTION 1 ANTENNA ANTENNA	

SUBSYSTEM 2

REDUNDANT OPTIONS:	OPTION 1 TRANSMITTER TRANSMITTER	

SUBSYSTEM 3

REDUNDANT OPTIONS:	OPTION 1 RECEIVER/EXCITER RECEIVER/EXCITER	

SUBSYSTEM 4

REDUNDANT OPTIONS:	OPTION 1 SIGNAL PROCESSOR SIGNAL PROCESSOR	

SUBSYSTEM 5

REDUNDANT OPTIONS:	OPTION 1 COMPUTER COMPUTER	

SUBSYSTEM 6

NONREDUNDANT OPTIONS:	OPTION 1 C D(B-52G,H)	

MISSION 1

EQUIPMENT DUTY CYCLE MATRIX

MISSION PHASE

SUBSYSTEM	1
1	*****
2	*****
3	*****
4	*****
5	*****
6	*****

FAILURE IMPACT PROBABILITY MATRIX

MISSION PHASE

SUBSYSTEM	1
1	0.00
2	0.00
3	0.00
4	0.10
5	0.00
6	0.00

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: ANTENNA QUANTITY/AIRCRAFT: 2

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	9031755.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	0.
I-LEVEL MAINTENANCE COST	=	32731.
D-LEVEL MAINTENANCE COST	=	74407.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	3385.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	9202789.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: TRANSMITTER QUANTITY/AIRCRAFT: 2

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	14165985.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	723742.
I-LEVEL MAINTENANCE COST	=	229354.
D-LEVEL MAINTENANCE COST	=	521414.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	35973.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	15632573.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM:	RECEIVER/EXCITER		QUANTITY/AIRCRAFT: 2
HARDWARE DEVELOPMENT COST	=	0.	
S.E. DEVELOPMENT COST	=	0.	
SOFTWARE DEVELOPMENT COST	=	0.	
HARDWARE ACQUISITION COST	=	20053352.	
S.E. ACQUISITION COST	=	0.	
NONHARDWARE ACQUISITION COST	=	0.	
INITIAL SPARES COST	=	619893.	
I-LEVEL MAINTENANCE COST	=	137516.	
D-LEVEL MAINTENANCE COST	=	312848.	
S.E. MAINTENANCE COST	=	0.	
SHIPPING COST	=	5993.	
SOFTWARE MAINTENANCE COST	=	0.	
TOTAL LIFE CYCLE COST	=	21130115.	

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM:	SIGNAL PROCESSOR		QUANTITY/AIRCRAFT: 2
HARDWARE DEVELOPMENT COST	=	0.	
S.E. DEVELOPMENT COST	=	0.	
SOFTWARE DEVELOPMENT COST	=	0.	
HARDWARE ACQUISITION COST	=	25227530.	
S.E. ACQUISITION COST	=	0.	
NONHARDWARE ACQUISITION COST	=	0.	
INITIAL SPARES COST	=	779331.	
I-LEVEL MAINTENANCE COST	=	190330.	
D-LEVEL MAINTENANCE COST	=	434042.	
S.E. MAINTENANCE COST	=	0.	
SHIPPING COST	=	14737.	
SOFTWARE MAINTENANCE COST	=	0.	
TOTAL LIFE CYCLE COST	=	26547170.	

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: COMPUTER QUANTITY/AIRCRAFT: 2

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	17410359.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	533457.
I-LEVEL MAINTENANCE COST	=	191011.
D-LEVEL MAINTENANCE COST	=	411494.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	11244.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	18559166.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: C D(B-52G,H) QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	5363493.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	325574.
I-LEVEL MAINTENANCE COST	=	92001.
D-LEVEL MAINTENANCE COST	=	209146.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	3923.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	5993237.

BASELINE CONFIGURATION

AIRCRAFT SUBSYSTEM	EQUIPMENT	
1	ANTENNA	(REDUNDANT UNIT 1)
	ANTENNA	(REDUNDANT UNIT 2)
2	TRANSMITTER	(REDUNDANT UNIT 1)
	TRANSMITTER	(REDUNDANT UNIT 2)
3	RECEIVER/EXCITER	(REDUNDANT UNIT 1)
	RECEIVER/EXCITER	(REDUNDANT UNIT 2)
4	SIGNAL PROCESSOR	(REDUNDANT UNIT 1)
	SIGNAL PROCESSOR	(REDUNDANT UNIT 2)
5	COMPUTER	(REDUNDANT UNIT 1)
	COMPUTER	(REDUNDANT UNIT 2)
6	C D(B-52G,H)	(NONREDUNDANT)

MISSION SUCCESS PROBABILITIES

MISSION	BASELINE MCSP
1	1.00000

BASELINE LIFE CYCLE COST = $ 97216953.

GLOBAL LIFE-CYCLE COSTS

ALL SUBSYSTEMS CUMULATIVE THROUGH CURRENT AIRCRAFT

HARDWARE DEVELOPMENT COST	=	5238000.
S.E. DEVELOPMENT COST	=	93000000.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	779081195.
S.E. ACQUISITION COST	=	196240000.
NONHARDWARE ACQUISITION COST	=	27443395.
INITIAL SPARES COST	=	23505239.
I-LEVEL MAINTENANCE COST	=	7862745.
D-LEVEL MAINTENANCE COST	=	17874442.
S.E. MAINTENANCE COST	=	23436000.
SHIPPING COST	=	739758.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL GLOBAL CYCLE COST	=	1131540874.

WARNING. MULTIPLE SUBSYSTEM OPTIONS
INCONSISTANT WITH MODE 2 OPERATION.
GLOBAL LIFE-CYCLE COST OUTPUT WILL
OVERESTIMATED

APPLICATIONS DATA

F-4E AIRCRAFT
NAVIGATION SUITE ALTERNATIVES

SUBSYSTEM 1

NONREDUNDANT OPTIONS: OPTION 1
ANTENNA

SUBSYSTEM 2

NONREDUNDANT OPTIONS: OPTION 1
TRANSMITTER

SUBSYSTEM 3

NONREDUNDANT OPTIONS: OPTION 1
RECEIVER/EXCITER

SUBSYSTEM 4

NONREDUNDANT OPTIONS: OPTION 1
SIGNAL PROCESSOR

SUBSYSTEM 5

NONREDUNDANT OPTIONS: OPTION 1
COMPUTER

SUBSYSTEM 6

NONREDUNDANT OPTIONS: OPTION 1
C W ILLUMINATOR F-4G

MISSION 1

EQUIPMENT DUTY CYCLE MATRIX

MISSION PHASE

SUBSYSTEM	1
1	1.600
2	1.600
3	1.600
4	1.600
5	1.600
6	.170

FAILURE IMPACT PROBABILITY MATRIX

MISSION PHASE

SUBSYSTEM	1
1	0.00
2	0.00
3	0.00
4	0.00
5	0.00
6	0.00

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: ANTENNA QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	30955547.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	38307.
I-LEVEL MAINTENANCE COST	=	83253.
D-LEVEL MAINTENANCE COST	=	135253.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	14587.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	31331245.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: TRANSMITTER QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	48276341.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	1757720.
I-LEVEL MAINTENANCE COST	=	533382.
D-LEVEL MAINTENANCE COST	=	1326207.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	135822.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	52112472.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: RECEIVER/EXCITER QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	68336398.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	2141493.
I-LEVEL MAINTENANCE COST	=	350329.
D-LEVEL MAINTENANCE COST	=	795724.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	33353.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	71656397.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: SIGNAL PROCESSOR QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	85978599.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	3361540.
I-LEVEL MAINTENANCE COST	=	435525.
D-LEVEL MAINTENANCE COST	=	1103378.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	55334.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	90684387.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM:	COMPUTER	QUANTITY/AIRCRAFT: 1
HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	59353785.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	2029200.
I-LEVEL MAINTENANCE COST	=	430399.
D-LEVEL MAINTENANCE COST	=	1046628.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	42219.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	62937231.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM:	C W ILLUMINATOR F-4J	QUANTITY/AIRCRAFT: 1
HARDWARE DEVELOPMENT COST	=	4900000.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	44610238.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	2415000.
INITIAL SPARES COST	=	1936135.
I-LEVEL MAINTENANCE COST	=	344985.
D-LEVEL MAINTENANCE COST	=	2148241.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	113378.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	57123541.

BASELINE CONFIGURATION

AIRCRAFT SUBSYSTEM	EQUIPMENT	
1	ANTENNA	(NONREDUNDANT)
2	TRANSMITTER	(NONREDUNDANT)
3	RECEIVER/EXCITER	(NONREDUNDANT)
4	SIGNAL PROCESSOR	(NONREDUNDANT)
5	COMPUTER	(NONREDUNDANT)
6	C W ILLUMINATOR F-4S	(NONREDUNDANT)

MISSION SUCCESS PROBABILITIES

MISSION	BASELINE MCSP
1	1.00000

BASELINE LIFE CYCLE COST = $ 365875813.

GLOBAL LIFE-CYCLE COSTS
ALL SUBSYSTEMS CUMULATIVE THROUGH CURRENT AIRCRAFT

HARDWARE DEVELOPMENT COST	=	11138000.
S.E. DEVELOPMENT COST	=	93000000.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	1115526883.
S.E. ACQUISITION COST	=	136240000.
NONHARDWARE ACQUISITION COST	=	23858395.
INITIAL SPARES COST	=	39659532.
I-LEVEL MAINTENANCE COST	=	13776418.
D-LEVEL MAINTENANCE COST	=	2[illegible][illegible]34474.
S.E. MAINTENANCE COST	=	29436000.
SHIPPING COST	=	1202751.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL GLOBAL CYCLE COST	=	1557416552.

WARNING. MULTIPLE SUBSYSTEM OPTIONS
INCONSISTANT WITH MODE 2 OPERATION.
GLOBAL LIFE-CYCLE COST OUTPUT WILL
OVERESTIMATED

APPLICATIONS DATA

FB-111 AIRCRAFT
NAVIGATION SUITE ALTERNATIVES

SUBSYSTEM 1

NONREDUNDANT OPTIONS: OPTION 1 ANTENNA

SUBSYSTEM 2

NONREDUNDANT OPTIONS: OPTION 1 TRANSMITTER

SUBSYSTEM 3

NONREDUNDANT OPTIONS: OPTION 1 RECEIVER/EXCITER

SUBSYSTEM 4

NONREDUNDANT OPTIONS: OPTION 1 SIGNAL PROCESSOR

SUBSYSTEM 5

NONREDUNDANT OPTIONS: OPTION 1 COMPUTER

SUBSYSTEM 6

NONREDUNDANT OPTIONS: OPTION 1 TFR F-111

MISSION 1

EQUIPMENT DUTY CYCLE MATRIX

MISSION PHASE

SUBSYSTEM	1
1	3.000
2	3.000
3	3.000
4	3.000
5	3.000
6	3.000

FAILURE IMPACT PROBABILITY MATRIX

MISSION PHASE

SUBSYSTEM	1
1	0.00
2	0.00
3	0.00
4	0.00
5	0.00
6	0.00

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: ANTENNA QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	3040245.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	0.
I-LEVEL MAINTENANCE COST	=	6530.
D-LEVEL MAINTENANCE COST	=	14845.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	775.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	3062395.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: TRANSMITTER QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	4730742.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	235489.
I-LEVEL MAINTENANCE COST	=	45760.
D-LEVEL MAINTENANCE COST	=	114026.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	7376.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	5133393.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: RECEIVER/EXCITER QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	6704951.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	290373.
I-LEVEL MAINTENANCE COST	=	27456.
D-LEVEL MAINTENANCE COST	=	62415.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	1755.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	7087452.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: SIGNAL PROCESSOR QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	6455975.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	355958.
I-LEVEL MAINTENANCE COST	=	36792.
D-LEVEL MAINTENANCE COST	=	35595.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	2342.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	8929571.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: COMPUTER		QUANTITY/AIRCRAFT: 1
HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	5824121.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	252561.
I-LEVEL MAINTENANCE COST	=	35113.
D-LEVEL MAINTENANCE COST	=	82036.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	2243.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	6137235.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: TFR F-111		QUANTITY/AIRCRAFT: 1
HARDWARE DEVELOPMENT COST	=	12000000.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	12623524.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	6475300.
INITIAL SPARES COST	=	723301.
I-LEVEL MAINTENANCE COST	=	32793.
D-LEVEL MAINTENANCE COST	=	120315.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	10882.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	32002614.

BASELINE CONFIGURATION

AIRCRAFT SUBSYSTEM	EQUIPMENT	
1	ANTENNA	(NONREDUNDANT)
2	TRANSMITTER	(NONREDUNDANT)
3	RECEIVER/EXCITER	(NONREDUNDANT)
4	SIGNAL PROCESSOR	(NONREDUNDANT)
5	COMPUTER	(NONREDUNDANT)
6	TFR F-111	(NONREDUNDANT)

MISSION SUCCESS PROBABILITIES

MISSION	BASELINE MCSP
1	1.00000

BASELINE LIFE CYCLE COST = $ 62378562.

GLOBAL LIFE-CYCLE COSTS

ALL SUBSYSTEMS CUMULATIVE THROUGH CURRENT AIRCRAFT

HARDWARE DEVELOPMENT COST	=	23138000.
S.E. DEVELOPMENT COST	=	93000000.
SOFTWARE DEVELOPMENT COST	=	0
HARDWARE ACQUISITION COST	=	1157989543.
S.E. ACQUISITION COST	=	196240000.
NONHARDWARE ACQUISITION COST	=	35333395.
INITIAL SPARES COST	=	41497324
I-LEVEL MAINTENANCE COST	=	10977151.
D-LEVEL MAINTENANCE COST	=	24354456.
S.E. MAINTENANCE COST	=	29436000.
SHIPPING COST	=	1228724.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL GLOBAL CYCLE COST	=	1613795214

WARNING. MULTIPLE SUBSYSTEM OPTIONS
INCONSISTANT WITH MODE 2 OPERATION.
GLOBAL LIFE-CYCLE COST OUTPUT WILL
OVERESTIMATED

APPLICATIONS DATA

F-111A AIRCRAFT
NAVIGATION SUITE ALTERNATIVES

SUBSYSTEM 1

NONREDUNDANT	OPTION 1
OPTIONS:	ANTENNA

SUBSYSTEM 2

NONREDUNDANT	OPTION 1
OPTIONS:	TRANSMITTER

SUBSYSTEM 3

NONREDUNDANT	OPTION 1
OPTIONS:	RECEIVER/EXCITER

SUBSYSTEM 4

NONREDUNDANT	OPTION 1
OPTIONS:	SIGNAL PROCESSOR

SUBSYSTEM 5

NONREDUNDANT	OPTION 1
OPTIONS:	COMPUTER

SUBSYSTEM 6

NONREDUNDANT	OPTION 1
OPTIONS:	TFR F-111

MISSION 1

EQUIPMENT DUTY CYCLE MATRIX

MISSION PHASE

SUBSYSTEM	1
1	3.000
2	3.000
3	3.000
4	3.000
5	3.000
6	3.000

FAILURE IMPACT PROBABILITY MATRIX

MISSION PHASE

SUBSYSTEM	1
1	0.00
2	0.00
3	0.00
4	0.00
5	0.00
6	0.00

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM:	ANTENNA		QUANTITY/AIRCRAFT: 1
HARDWARE DEVELOPMENT COST	=	0.	
S.E. DEVELOPMENT COST	=	0.	
SOFTWARE DEVELOPMENT COST	=	0.	
HARDWARE ACQUISITION COST	=	4383544.	
S.E. ACQUISITION COST	=	0.	
NONHARDWARE ACQUISITION COST	=	0.	
INITIAL SPARES COST	=	43704.	
I-LEVEL MAINTENANCE COST	=	12397.	
D-LEVEL MAINTENANCE COST	=	28182.	
S.E. MAINTENANCE COST	=	0.	
SHIPPING COST	=	1471.	
SOFTWARE MAINTENANCE COST	=	0.	
TOTAL LIFE CYCLE COST	=	4469298.	

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM:	TRANSMITTER		QUANTITY/AIRCRAFT: 1
HARDWARE DEVELOPMENT COST	=	0.	
S.E. DEVELOPMENT COST	=	0.	
SOFTWARE DEVELOPMENT COST	=	0.	
HARDWARE ACQUISITION COST	=	6823515.	
S.E. ACQUISITION COST	=	0.	
NONHARDWARE ACQUISITION COST	=	0.	
INITIAL SPARES COST	=	272341.	
I-LEVEL MAINTENANCE COST	=	36972.	
D-LEVEL MAINTENANCE COST	=	137487.	
S.E. MAINTENANCE COST	=	0.	
SHIPPING COST	=	14364.	
SOFTWARE MAINTENANCE COST	=	0.	
TOTAL LIFE CYCLE COST	=	7[illegible]32[illegible].	

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: RECEIVER/EXCITER QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	9567455.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	289135.
I-LEVEL MAINTENANCE COST	=	52123.
D-LEVEL MAINTENANCE COST	=	118492.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	3334.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	10130539.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: SIGNAL PROCESSOR QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	12153313.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	485030.
I-LEVEL MAINTENANCE COST	=	72315.
D-LEVEL MAINTENANCE COST	=	104395.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	5582.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	12830534.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: COMPUTER QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	8337441.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	334960.
I-LEVEL MAINTENANCE COST	=	68553.
D-LEVEL MAINTENANCE COST	=	155955.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	4259.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	8950973.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: TFR F-111 QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	17639756.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	733933.
I-LEVEL MAINTENANCE COST	=	67781.
D-LEVEL MAINTENANCE COST	=	154387.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	13371.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	18773428.

BASELINE CONFIGURATION

AIRCRAFT SUBSYSTEM	EQUIPMENT	
1	ANTENNA	(NONREDUNDANT)
2	TRANSMITTER	(NONREDUNDANT)
3	RECEIVER/EXCITER	(NONREDUNDANT)
4	SIGNAL PROCESSOR	(NONREDUNDANT)
5	COMPUTER	(NONREDUNDANT)
6	TFR F-111	(NONREDUNDANT)

MISSION SUCCESS PROBABILITIES

MISSION	BASELINE MCSP
1	1.00000

BASELINE LIFE CYCLE COST = $ 52631193.

GLOBAL LIFE-CYCLE COSTS
ALL SUBSYSTEMS CUMULATIVE THROUGH CURRENT AIRCRAFT

HARDWARE DEVELOPMENT COST	=	23138000.
S.E. DEVELOPMENT COST	=	98000000.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	1217270558.
S.E. ACQUISITION COST	=	195240033.
NONHARDWARE ACQUISITION COST	=	36333335.
INITIAL SPARES COST	=	43526827.
I-LEVEL MAINTENANCE COST	=	11337209.
D-LEVEL MAINTENANCE COST	=	25772955.
S.E. MAINTENANCE COST	=	23436000.
SHIPPING COST	=	1271345.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL GLOBAL CYCLE COST	=	1682425437.

WARNING. MULTIPLE SUBSYSTEM OPTIONS
INCONSISTANT WITH MODE 2 OPERATION.
GLOBAL LIFE-CYCLE COST OUTPUT WILL
OVERESTIMATED

APPLICATIONS DATA

F-111E AIRCRAFT
NAVIGATION SUITE ALTERNATIVES

SUBSYSTEM 1

NONREDUNDANT OPTIONS: OPTION 1
ANTENNA

SUBSYSTEM 2

NONREDUNDANT OPTIONS: OPTION 1
TRANSMITTER

SUBSYSTEM 3

NONREDUNDANT OPTIONS: OPTION 1
RECEIVER/EXCITER

SUBSYSTEM 4

NONREDUNDANT OPTIONS: OPTION 1
SIGNAL PROCESSOR

SUBSYSTEM 5

NONREDUNDANT OPTIONS: OPTION 1
COMPUTER

SUBSYSTEM 6

NONREDUNDANT OPTIONS: OPTION 1
TFR F-111

MISSION 1

EQUIPMENT DUTY CYCLE MATRIX

MISSION PHASE

SUBSYSTEM	1
1	3.000
2	3.000
3	3.000
4	3.000
5	3.000
6	3.000

FAILURE IMPACT PROBABILITY MATRIX

MISSION PHASE

SUBSYSTEM	1
1	0.000
2	0.000
3	0.000
4	0.000
5	0.000
6	0.000

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: ANTENNA QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	3575278.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	0.
I-LEVEL MAINTENANCE COST	=	10015.
D-LEVEL MAINTENANCE COST	=	22759.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	1357.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	3609930.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: TRANSMITTER QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	5571328.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	542043.
I-LEVEL MAINTENANCE COST	=	71188.
D-LEVEL MAINTENANCE COST	=	159559.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	17765.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	6359882.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: RECEIVER/EXCITER QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	7834308.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	571382.
I-LEVEL MAINTENANCE COST	=	42113.
D-LEVEL MAINTENANCE COST	=	35735.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	4230.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	8535365.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: SIGNAL PROCESSOR QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	9920503.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	844714.
I-LEVEL MAINTENANCE COST	=	96427.
D-LEVEL MAINTENANCE COST	=	132322.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	7381.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	10953507.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: COMPUTER QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	6049057.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	593183.
I-LEVEL MAINTENANCE COST	=	55392.
D-LEVEL MAINTENANCE COST	=	125922.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	5403.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	7618906.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: TFR F-111 QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	14293471.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	1035383.
I-LEVEL MAINTENANCE COST	=	43733.
D-LEVEL MAINTENANCE COST	=	113964.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	15095.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	15501748.

BASELINE CONFIGURATION

AIRCRAFT SUBSYSTEM	EQUIPMENT	
1	ANTENNA	(NONREDUNDANT)
2	TRANSMITTER	(NONREDUNDANT)
3	RECEIVER/EXCITER	(NONREDUNDANT)
4	SIGNAL PROCESSOR	(NONREDUNDANT)
5	COMPUTER	(NONREDUNDANT)
6	TFR F-111	(NONREDUNDANT)

MISSION SUCCESS PROBABILITIES

MISSION	BASELINE MCSP
1	1.00000

BASELINE LIFE CYCLE COST = $ 52758502.

GLOBAL LIFE-CYCLE COSTS
ALL SUBSYSTEMS CUMULATIVE THROUGH CURRENT AIRCRAFT

HARDWARE DEVELOPMENT COST	=	23138000.
S.E. DEVELOPMENT COST	=	98000000.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	1265354282.
S.E. ACQUISITION COST	=	195240000.
NONHARDWARE ACQUISITION COST	=	33333395.
INITIAL SPARES COST	=	47313531.
I-LEVEL MAINTENANCE COST	=	11623079.
D-LEVEL MAINTENANCE COST	=	25422836.
S.E. MAINTENANCE COST	=	23435000.
SHIPPING COST	=	1323785.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL GLOBAL CYCLE COST	=	1735184909.

WARNING. MULTIPLE SUBSYSTEM OPTIONS
INCONSISTANT WITH MODE 2 OPERATION.
GLOBAL LIFE-CYCLE COST OUTPUT WILL
OVERESTIMATED

APPLICATIONS DATA

F-111D AIRCRAFT
NAVIGATION SUITE ALTERNATIVES

SUBSYSTEM 1

NONREDUNDANT OPTIONS: OPTION 1
ANTENNA

SUBSYSTEM 2

NONREDUNDANT OPTIONS: OPTION 1
TRANSMITTER

SUBSYSTEM 3

NONREDUNDANT OPTIONS: OPTION 1
RECEIVER/EXCITER

SUBSYSTEM 4

NONREDUNDANT OPTIONS: OPTION 1
SIGNAL PROCESSOR

SUBSYSTEM 5

NONREDUNDANT OPTIONS: OPTION 1
COMPUTER

SUBSYSTEM 6

[illegible]UNDANT [illegible]ONS: OPTION 1
IFR F-111

MISSION 1

EQUIPMENT DUTY CYCLE MATRIX

MISSION PHASE

SUBSYSTEM	1
1	3.000
2	3.000
3	3.000
4	3.000
5	3.000
6	3.000

FAILURE IMPACT PROBABILITY MATRIX

MISSION PHASE

SUBSYSTEM	1
1	0.00
2	0.00
3	0.00
4	0.00
5	0.00
6	0.00

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM:	ANTENNA	QUANTITY/AIRCRAFT: 1
HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	3813359.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	0.
I-LEVEL MAINTENANCE COST	=	15710.
D-LEVEL MAINTENANCE COST	=	24347.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	1271.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	3854587.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM:	TRANSMITTER	QUANTITY/AIRCRAFT: 1
HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	5943352.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	134857.
I-LEVEL MAINTENANCE COST	=	75050.
D-LEVEL MAINTENANCE COST	=	175512.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	12398.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	6341573.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: RECEIVER/EXCITER QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	8420998.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	286352.
I-LEVEL MAINTENANCE COST	=	45030.
D-LEVEL MAINTENANCE COST	=	102367.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	2880.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	8857528.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: SIGNAL PROCESSOR QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	10595058.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	363280.
I-LEVEL MAINTENANCE COST	=	62474.
D-LEVEL MAINTENANCE COST	=	142023.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	4822.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	11164657.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM:	COMPUTER		QUANTITY/AIRCRAFT: 1
HARDWARE DEVELOPMENT COST	=	0.	
S.E. DEVELOPMENT COST	=	0.	
SOFTWARE DEVELOPMENT COST	=	0.	
HARDWARE ACQUISITION COST	=	7314732.	
S.E. ACQUISITION COST	=	0.	
NONHARDWARE ACQUISITION COST	=	0.	
INITIAL SPARES COST	=	248734.	
I-LEVEL MAINTENANCE COST	=	59223.	
D-LEVEL MAINTENANCE COST	=	134645.	
S.E. MAINTENANCE COST	=	0.	
SHIPPING COST	=	3579.	
SOFTWARE MAINTENANCE COST	=	0.	
TOTAL LIFE CYCLE COST	=	7761019.	

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM:	TFR F-111		QUANTITY/AIRCRAFT: 1
HARDWARE DEVELOPMENT COST	=	0.	
S.E. DEVELOPMENT COST	=	0.	
SOFTWARE DEVELOPMENT COST	=	0.	
HARDWARE ACQUISITION COST	=	15054031.	
S.E. ACQUISITION COST	=	0.	
NONHARDWARE ACQUISITION COST	=	0.	
INITIAL SPARES COST	=	677911.	
I-LEVEL MAINTENANCE COST	=	51759.	
D-LEVEL MAINTENANCE COST	=	117687.	
S.E. MAINTENANCE COST	=	0.	
SHIPPING COST	=	10571.	
SOFTWARE MAINTENANCE COST	=	0.	
TOTAL LIFE CYCLE COST	=	15912058.	

BASELINE CONFIGURATION

AIRCRAFT SUBSYSTEM	EQUIPMENT	
1	ANTENNA	(NONREDUNDANT)
2	TRANSMITTER	(NONREDUNDANT)
3	RECEIVER/EXCITER	(NONREDUNDANT)
4	SIGNAL PROCESSOR	(NONREDUNDANT)
5	COMPUTER	(NONREDUNDANT)
6	TFR F-111	(NONREDUNDANT)

MISSION SUCCESS PROBABILITIES

MISSION	BASELINE MCSP
1	1.00000

BASELINE LIFE CYCLE COST = $ 53691739.

GLOBAL LIFE-CYCLE COSTS

ALL SUBSYSTEMS CUMULATIVE THROUGH CURRENT AIRCRAFT

HARDWARE DEVELOPMENT COST	=	23138000.
S.E. DEVELOPMENT COST	=	98000000.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	1316516512.
S.E. ACQUISITION COST	=	196240000.
NONHARDWARE ACQUISITION COST	=	36333395.
INITIAL SPARES COST	=	49011574.
I-LEVEL MAINTENANCE COST	=	11927341.
O-LEVEL MAINTENANCE COST	=	27114518.
S.E. MAINTENANCE COST	=	29436000.
SHIPPING COST	=	1359208.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL GLOBAL CYCLE COST	=	1789076548.

WARNING. MULTIPLE SUBSYSTEM OPTIONS
INCONSISTANT WITH MODE 2 OPERATION.
GLOBAL LIFE-CYCLE COST OUTPUT WILL
OVERESTIMATED

APPLICATIONS DATA

F-111F AIRCRAFT
NAVIGATION SUITE ALTERNATIVES

SUBSYSTEM 1

NONREDUNDANT OPTIONS:	OPTION 1 ANTENNA

SUBSYSTEM 2

NONREDUNDANT OPTIONS:	OPTION 1 TRANSMITTER

SUBSYSTEM 3

NONREDUNDANT OPTIONS:	OPTION 1 RECEIVER/EXCITER

SUBSYSTEM 4

NONREDUNDANT OPTIONS:	OPTION 1 SIGNAL PROCESSOR

SUBSYSTEM 5

NONREDUNDANT OPTIONS:	OPTION 1 COMPUTER

SUBSYSTEM 6

NONREDUNDANT OPTIONS:	OPTION 1 TFR F-111

MISSION 1

EQUIPMENT DUTY CYCLE MATRIX

MISSION PHASE

SUBSYSTEM	1
1	3.000
2	3.000
3	3.000
4	3.000
5	3.000
6	3.000

FAILURE IMPACT PROBABILITY MATRIX

MISSION PHASE

SUBSYSTEM	1
1	0.00
2	0.00
3	0.00
4	0.00
5	0.00
6	0.00

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM:	ANTENNA	QUANTITY/AIRCRAFT: 1
HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	4233532.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	43354.
I-LEVEL MAINTENANCE COST	=	11874.
D-LEVEL MAINTENANCE COST	=	25993.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	2593.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	4315144.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM:	TRANSMITTER	QUANTITY/AIRCRAFT: 1
HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	6501222.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	535527.
I-LEVEL MAINTENANCE COST	=	83206.
D-LEVEL MAINTENANCE COST	=	139152.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	25528.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	7425734.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: RECEIVER/EXCITER QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	9330002.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	569629.
I-LEVEL MAINTENANCE COST	=	49923.
D-LEVEL MAINTENANCE COST	=	113491.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	6102.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	10069148.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: SIGNAL PROCESSOR QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	11738740.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	836116.
I-LEVEL MAINTENANCE COST	=	69253.
D-LEVEL MAINTENANCE COST	=	157457.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	10215.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	12811791.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: COMPUTER QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	8104326.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	577247.
I-LEVEL MAINTENANCE COST	=	55555.
O-LEVEL MAINTENANCE COST	=	149277.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	7794.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	8904303.

LOCAL LIFE-CYCLE COSTS

SUBSYSTEM: TFR F-111 QUANTITY/AIRCRAFT: 1

HARDWARE DEVELOPMENT COST	=	0.
S.E. DEVELOPMENT COST	=	0.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	16452529.
S.E. ACQUISITION COST	=	0.
NONHARDWARE ACQUISITION COST	=	0.
INITIAL SPARES COST	=	665794.
I-LEVEL MAINTENANCE COST	=	55195.
O-LEVEL MAINTENANCE COST	=	127751.
S.E. MAINTENANCE COST	=	0.
SHIPPING COST	=	22132.
SOFTWARE MAINTENANCE COST	=	0.
TOTAL LIFE CYCLE COST	=	17334502.

BASELINE CONFIGURATION

AIRCRAFT SUBSYSTEM	EQUIPMENT	
1	ANTENNA	(NONREDUNDANT)
2	TRANSMITTER	(NONREDUNDANT)
3	RECEIVER/EXCITER	(NONREDUNDANT)
4	SIGNAL PROCESSOR	(NONREDUNDANT)
5	COMPUTER	(NONREDUNDANT)
6	TFR F-111	(NONREDUNDANT)

MISSION SUCCESS PROBABILITIES

MISSION	BASELINE MCSP
1	1.00000

BASELINE LIFE CYCLE COST = $ 53853523.

GLOBAL LIFE-CYCLE COSTS

ALL SUBSYSTEMS CUMULATIVE THROUGH CURRENT AIRCRAFT

HARDWARE DEVELOPMENT COST	=	23138000.
S.E. DEVELOPMENT COST	=	93000000.
SOFTWARE DEVELOPMENT COST	=	0.
HARDWARE ACQUISITION COST	=	1372973956
S.E. ACQUISITION COST	=	136240000.
NONHARDWARE ACQUISITION COST	=	36333395.
INITIAL SPARES COST	=	52240041.
I-LEVEL MAINTENANCE COST	=	12253469
D-LEVEL MAINTENANCE COST	=	27878639.
S.E. MAINTENANCE COST	=	23435000.
SHIPPING COST	=	1433772.
SOFTWARE MAINTENANCE COST	=	0
TOTAL GLOBAL CYCLE COST	=	1849937271.

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